

Reports of *Agathidium* from Turkey (Coleoptera, Leiodontidae)

by

Fernando ANGELINI * and Luigi DE MARZO **

With 114 figures

ABSTRACT

27 species of *Agathidium* from Turkey, including 6 new records and 11 new descriptions, are treated on the basis of a large amount of specimens, most of which recently collected by Dr. C. Besuchet and Dr. I. Löbl. There are designated: i) lectotype and paralectotypes of *A. laevigatum* Er., ii) lectotype and paralectotypes of *A. leonhardianum* Roub., iii) neotype of *A. bescidicum* Reitt. A list of the synonyms of *A. rotundatum* Gyll., *A. bescidicum* Reitt. and *A. pseudobescidicum* n. sp. is reported. The presence in Turkey of *A. dentatum* Muls. & Rey is considered as doubtful.

New records: *A. pisanum* Bris., *A. badium* Er., *A. caasicum* Reitt., *A. laevigatum* Er., *A. obenbergeri* Hlisen. and *A. winkleri* Hlisen.

New descriptions: *A. pseudobescidicum* n. sp., *A. levantinum* n. sp., *A. immaculatum* n. sp., *A. cottarellii* n. sp., *A. osellai* n. sp., *A. loebli* n. sp., *A. antiochense* n. sp., *A. anatolicum* n. sp., *A. bythinicum* n. sp., *A. olympicum* n. sp. and *A. brignolii* n. sp.

INTRODUCTION

The first paper on a Turkish *Agathidium* has been published in 1898 by REITTER, who described *A. turcicum* in seven lines, on the basis of an unreported number of specimens, collected by E. Merkl in "Constantinopel" (= Istanbul). Subsequently, in 1908, a second species, *A. temporale*, from Turunschli-Bulgar Dagħ was described by SAHLBERG.

Many years later, in 1964, HLISNIKOWSKY described *A. bodemeyeri* from Sultan Dagħ (*legit* Bodemeyer) and recorded from the same locality *A. leonhardianum* Roubal (already known from Bulgaria since 1915). Lastly, in 1972, HLISNIKOWSKY dealt with

* Via Imperiali « Villa Italia » N. 189, Francavilla Fontana (Brindisi), Italy.

** Istituto di Entomologia Agraria dell'Università, via Amendola 165, Bari, Italy.

further six new species (*A. besucheti* Hlisl., *A. osmanicum* Hlisl., *A. tauricum* Hlisl., *A. tibiellum* Hlisl., *A. denticulatum* Hlisl. and *A. capitatum* Hlisl.) from different localities, five species of which on the basis of material collected by Dr. C. Besuchet.

At present, a remarkable amount of new Turkish specimens placed at our disposal by Natural History Museum of Geneva, Univ. Zoology Institute of Rome and Civic Museum of Natural History of Verona, enables us to add to the Turkish fauna 17 species of *Agathidium*, of which 11 are new descriptions.

We have chosen to work for a more extended paper — rather than to deal only with new records and descriptions — because of two chief reasons. The first one is that some original descriptions of Turkish species looked to us too much concise for an easy determination of them — from which the need of a direct examination of types. Secondly, our new reports nearly treble the number of *Agathidium* from Turkey, so that we deemed a summarizing paper more suitable.

The present paper deals with 27 species, including 6 new records and 11 new descriptions. There are designated lectotype and paralectotypes of *A. laevigatum* Er. and *A. leonhardianum* Roubal. Moreover the neotype of *A. bescidicum* Reitter is designated and a list of synonyms of *A. rotundatum* Gyll., *A. bescidicum* Reitter and *A. pseudo-bescidicum* n. sp. is reported (see what noted for *A. pseudobescidicum* n. sp.). The presence in Turkey of *A. dentatum* Muls. & Rey (HORION 1949: 162) is considered as doubtful (see what noted for *A. turcicum* Reitter).

MATERIAL AND METHODS

The new material consists of 549 specimens from Western and Central Turkey, of which 537 collected by Dr. C. Besuchet and Dr. I. LÖBL in 39 localities (17 species) and 12 collected by Prof. P. Brignoli, Prof. V. Cottarelli, Dr. G. Osella and Prof. A. Vigna Taglianti in 7 localities (6 species). Further 32 specimens from different localities belong to coll. Reitter (Museum of Budapest), Museum of Venice and coll. Roubal (Museum of Bratislava).

Type specimens of the following species have been examined: *A. besucheti* Hlisl., *A. temporale* Sahlb., *A. osmanicum* Hlisl., *A. pisanum* Bris., *A. badium* Er., *A. caucasicum* Reitter, *A. capitatum* Hlisl., *A. laevigatum* Er., *A. tibiellum* Hlisl., *A. denticulatum* Hlisl. and *A. leonhardianum* Roubal.

Our description of *A. obenbergeri* Hlisl. and *A. winkleri* Hlisl. is based on specimens from the typical locality. No specimen has been examined of *A. tauricum* Hlisl., *A. bodemeyeri* Hlisl. and *A. turcicum* Reitter and therefore we'll give a description of these species translated from the original one.

Specifications about our terminology may be found in our preceding papers (ANGELINI & DE MARZO 1980: 47-76, 1981: 187-294).

Symbols — $3rd/2nd$: length ratio between 3rd and 2nd antennal segments. $4th + 5th$: length sum of 4th and 5th antennal segments. P/H : breadth ratio between pronotum and head. W/L : ratio between width and length (pronotum and elytra). W/H : ratio between width and height (pronotum and elytra).

ACKNOWLEDGMENTS

Thanks to the Researchers of the expeditions in Turkey who loaned to us their material: Dr. C. Besuchet (Museum Hist. Nat. Genève), Prof. P. Brignoli (Rome), Prof. V. Cottarelli (Rome), Dr. I. Löbl (Museum Hist. nat. Genève), Dr. G. Osella

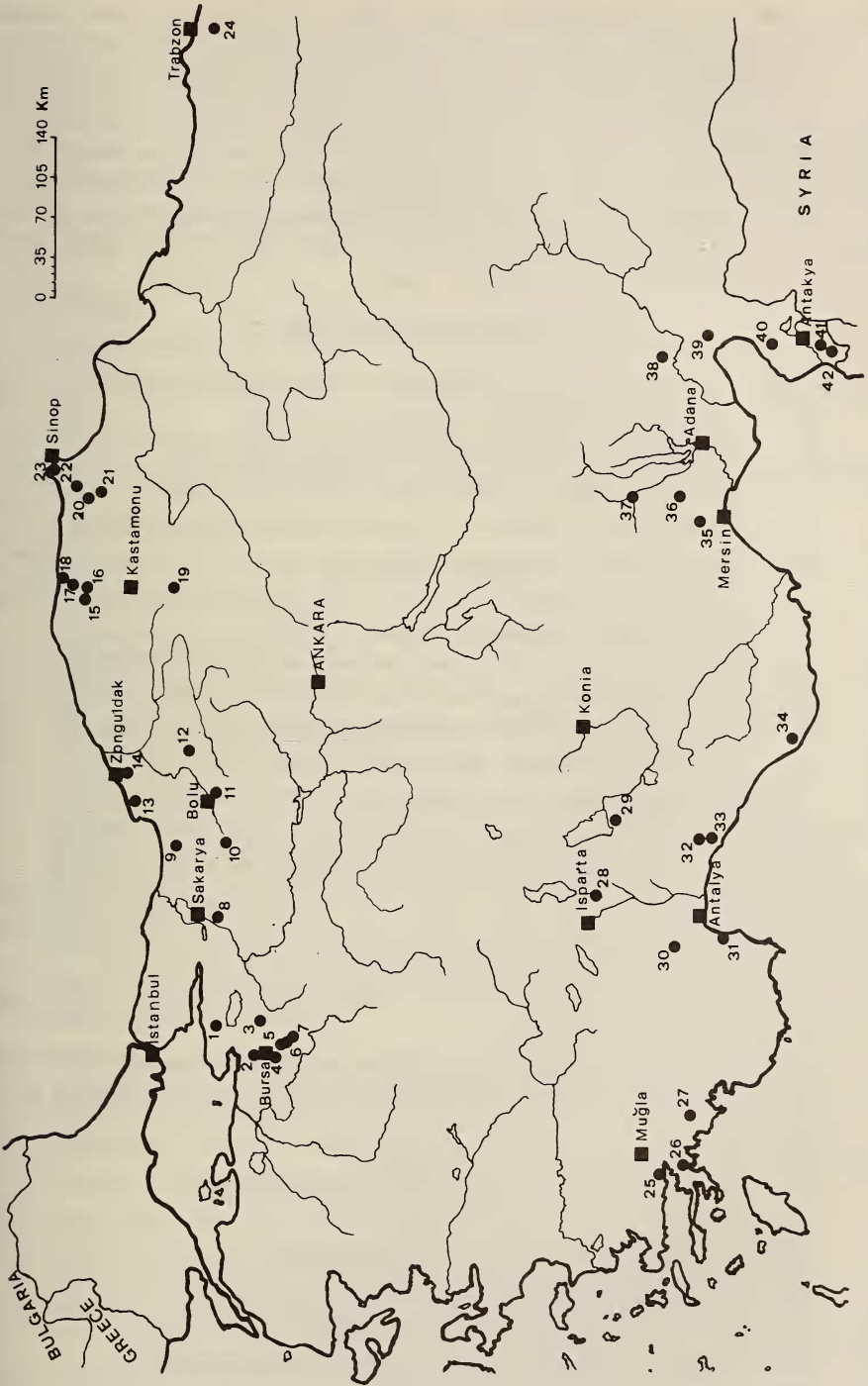


FIG. 1. — Collecting localities.

(Museo Civico St. Nat. Verona), Prof. A. Vigna Taglianti (Istituto Zool. Univ. Roma); for the generous assistance, suggestions and loan of type specimens, many thanks also to: Dr. N. Berti (Museum Hist. Nat. Paris), Mr. I. Bucciarelli (Museo Civico St. Nat. Milano), Dr. M. Brancucci (Naturhist. Museum Basel), Dr. L. Hedstrom (Univ. Zool. Institute Uppsala), Dr. J. Jelinek (Narodni Muz. Praze), Dr. Z. Kaszab (Termesz. Muz. Budapest), Dr. O. Martin (Zool. Mus. Copenhagen), Dr. I. Okali (Slov. Narod. Muz. Bratislava), Dr. T. Palm (Univ. Zool. Institute Uppsala), Dr. W. Schawaller (Staat. Mus. Naturk. Stuttgart), Dr. G. Scherer (Zool. Staatssamm. Munchen), Dr. H. Silfverberg (Univ. Zool. Museum Helsingfors), Dr. M. Uhlig (Mus. Naturk. Humb. Univ. Berlin).

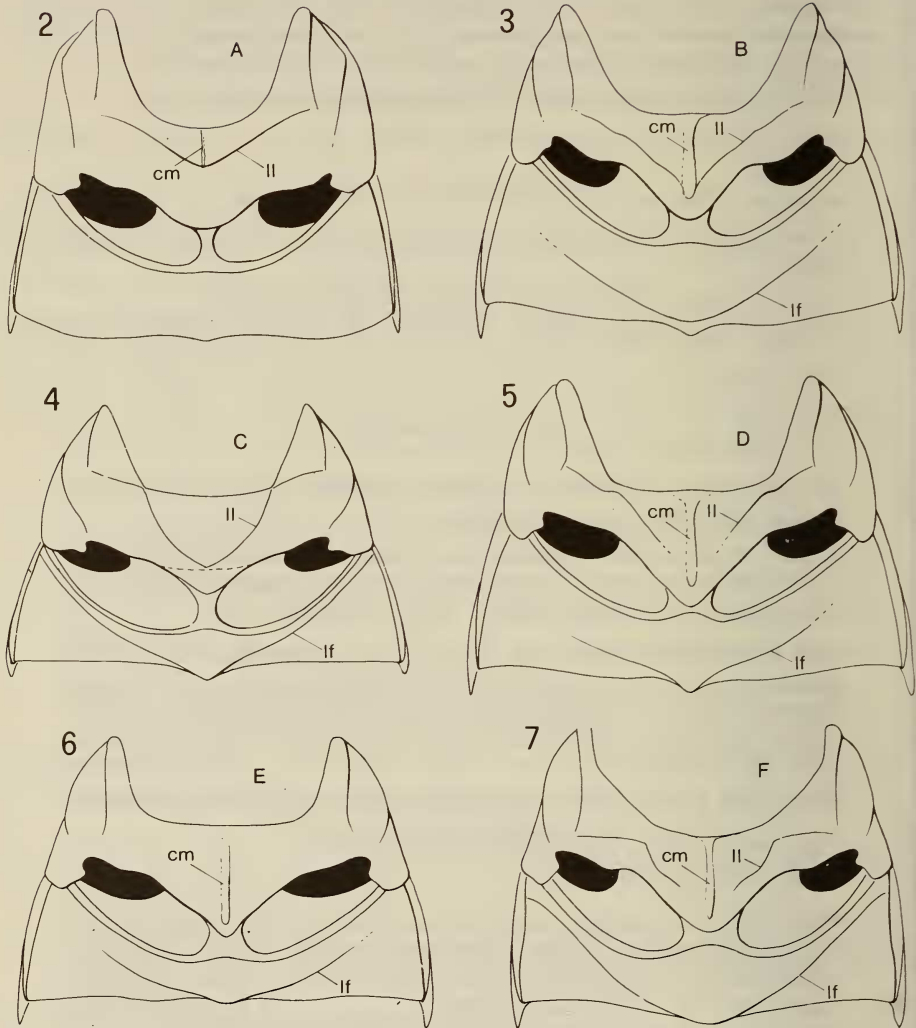
COLLECTING LOCALITIES (fig. 1)

- 1 — ISTANBUL, between Yalova and Orhangazi, leg. Besuchet, 11.V.1976.
- 2 — BURSA, Bursa gorge, leg. Besuchet and Löbl, 13.V.1976.
- 3 — BURSA, Nazifpasa, 1000 m, leg. M. and G. Osella, 14.VII.1972.
- 4 — BURSA, south Bursa, 500 m, leg. Besuchet and Löbl, 12.V.1976.
- 5 — BURSA, Uludag, 17 km from Bursa, 1100 m, leg. Besuchet and Löbl, 13.V.1976.
- 6 — BURSA, Uludag, 20 Km from Bursa, 1300 m, leg. Besuchet and Löbl, 12.V.1976.
- 7 — BURSA, Uludag, 23 Km from Bursa, 1500 m, leg. Besuchet and Löbl, 13.V.1976.
- 8 — SAKARYA, Şerefıyie, leg. Besuchet and Löbl, 14.V.1976.
- 9 — BOLU, Konuralp-Akçakoca, 400 m, leg. Besuchet and Löbl, 15.V.1976.
- 10 — BOLU, Abant, 1500-1600 m, leg. Besuchet and Löbl, 22.V.1976.
- 11 — BOLU, Omerler near Bolu, 800 m, leg. Besuchet and Löbl, 21.V.1976.
- 12 — BOLU, outskirts Gerede, 800 m, leg. M. and G. Osella, 4.VII.1972.
- 13 — ZONGULDAK, Ereğli-Baliköy, leg. Besuchet and Löbl, 15.V.1976.
- 14 — ZONGULDAK, South Zonguldak, 500 m, leg. Besuchet and Löbl, 23.V.1976.
- 15 — KASTAMONU, 13 Km east Aglı, 1200 m, leg. Besuchet and Löbl, 18.V.1976.
- 16 — KASTAMONU, Küre, 5 Km north, 600 m, leg. Besuchet and Löbl, 18.V.1976.
- 17 — KASTAMONU, Küre, 5 Km south, 1200 m, leg. Besuchet and Löbl, 18.V.1976.
- 18 — KASTAMONU, south Inebolu, 600 m, leg. Besuchet and Löbl, 18.V.1976.
- 19 — KASTAMONU, Ilgazdag near Colle, 1700-1800 m, Ilgazdag Diphan, 1300 m, leg. Besuchet and Löbl, 17.V.1976.
- 20 — SINOP, Bürnük, 29 Km north Boyabat, 1250 m, leg. Besuchet and Löbl, 20.V.1976.
- 21 — SINOP, south Bektas, 23 Km north Boyabat, 1100 m, leg. Besuchet and Löbl, 20.V.1976.
- 22 — SINOP, Dranz Dag, leg. Brignoli, 1.V.1969.
- 23 — SINOP, Lala near Sinop, leg. Besuchet and Löbl, 20.V.1976.
- 24 — TRABZON, Soumela, leg. Osella, 14.VI.1969.
- 25 — MUGLA, Gökova, leg. Besuchet and Löbl, 30.IV.1975.
- 26 — MUGLA, Çetibeli-Marmaris, leg. Besuchet and Löbl, 1.V.1975.
- 27 — MUGLA, Göcek, leg. Besuchet and Löbl, 2.V.1975.
- 28 — ISPARTA, Egridir-Çandır, 950 m, leg. Besuchet and Löbl, 6.V.1975.
- 29 — KONYA, 18 Km south/west Beyşehir, 1200 m, leg. Besuchet and Löbl, 7.V.1978.

- 30 — ANTALYA, Yenice, 700 m, leg. Besuchet and Löbl, 3.V.1975.
 31 — ANTALYA, between Antalya and Kemer, leg. Besuchet and Löbl, 4.V.1975.
 32 — ANTALYA, 20 Km north Manavgat, leg. Besuchet and Löbl, 26.IV.1978.
 33 — ANTALYA, 12 Km north Manavgat, leg. Besuchet, and Löbl, 26.IV.1978.
 34 — ANTALYA, 18 Km south/east Gazipaşa, leg. Besuchet and Löbl, 27.IV.1978.
 35 — MERSIN, between Mersin and Yeniköy, 650 m, leg. Besuchet and Löbl, 29.IV.1978.
 36 — MERSIN, Tarsus-Gulek, 550 m, leg. Besuchet and Löbl, 30.IV.1978.
 37 — ADANA, south Pozanti, 1000 m, leg. Besuchet and Löbl, 30.IV.1978.
 38 — ADANA, Karatepe, 21 Km south/east Kadirli, 200 m, leg. Besuchet and Löbl, 1.V.1978.
 39 — ANTAKYA, 7 Km east Yeşilkent, 350-400 m, leg. Besuchet and Löbl, 4.V.1978.
 40 — ANTAKYA, Sogukoluk, 10 Km south/west Iskenderun, 700 m, leg. Besuchet and Löbl.
 41 — ANTAKYA, SIRIA, Harbiye, leg. Besuchet and Löbl, 2.V.1978.
 42 — ANTAKYA, SIRIA, Kişlak-Şenkoy, 800-850 m, leg. Besuchet and Löbl, 2.V.1978.

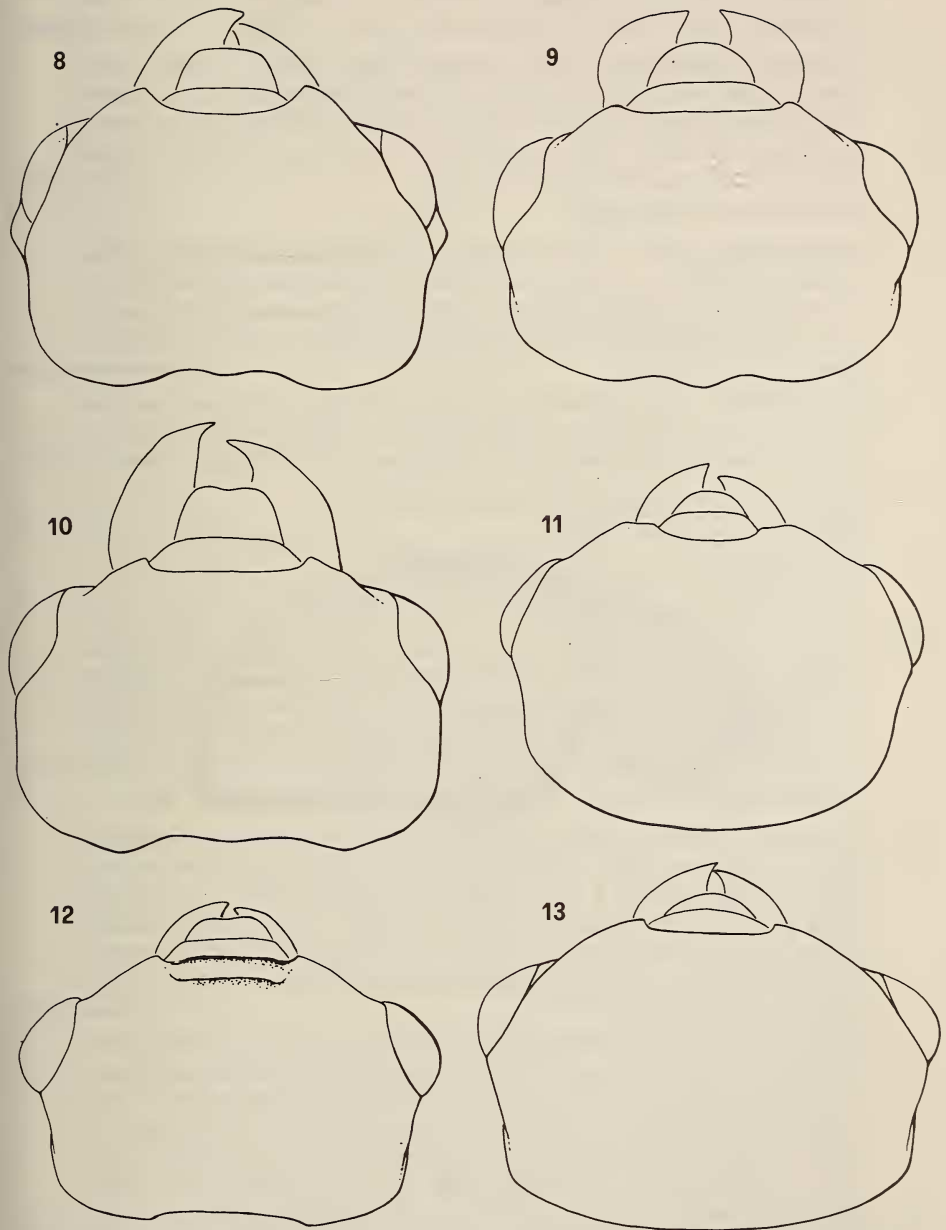
KEY TO SPECIES

1. — Lateral outline of elytra with conspicuous humeral angle (fig. 18). Metasternum without femoral lines (fig. 2) 2
 — Lateral outline of elytra with slight and broadly rounded humeral angle (fig. 19). Metasternum with femoral lines, complete or incomplete (figs 3-7), lacking only in *A. capitatum* Hlisl.: subg. *Agathidium* s. str. 8
2. — Head widest clearly behind eyes (fig. 8): subg. *Cyphocele*. Sutural striae present, within the apical half of elytra. Clypeal line absent or very vague. Dorsum without microreticulation and wholly punctate. Elytra black, both of them with longitudinal reddish band (fig. 18). Length 3,35 mm. Head: fig. 8. Turkey 1. *besucheti* Hlisl.
 — Head widest at eyes or just a little behind eyes (figs 9-10): subg. *Neocele* 3
3. — Elytra with sutural striae (within their apical half) 4
 — Elytra without sutural striae 6
4. — Whole dorsum without microreticulation. Dorsum black; antennae with 9th and 10th segments darker. 3rd antennal segment nearly 1,7 times as long as the 2nd. Length 2,45-2,85 mm. Male copulatory organ: figs 47-48; spermatheca: fig. 59. Caucasus, Turkey 2. *pseudobescidicum* n. sp.
 — Dorsum at least partly more or less strongly microreticulate. 5
5. — 3rd antennal segment shorter than the 2nd (fig. 20); head widest just a little behind eyes (fig. 9); lateral outline of pronotum broadly rounded; female tarsal formula: 4-4-4. Clypeal line very fine and vague. Dorsum reddish-brown, antennae with 9th and 10th segments dark. Length 2,85 mm. Male copulatory organ: figs 49-50; spermatheca: fig. 60. 3. *levantinum* n. sp.
 — 3rd antennal segment much longer than the 2nd (3rd/2nd = 1,8; fig. 21); head widest at eyes; lateral outline of pronotum truncate (as in *A. besucheti*



FIGS 2-7.

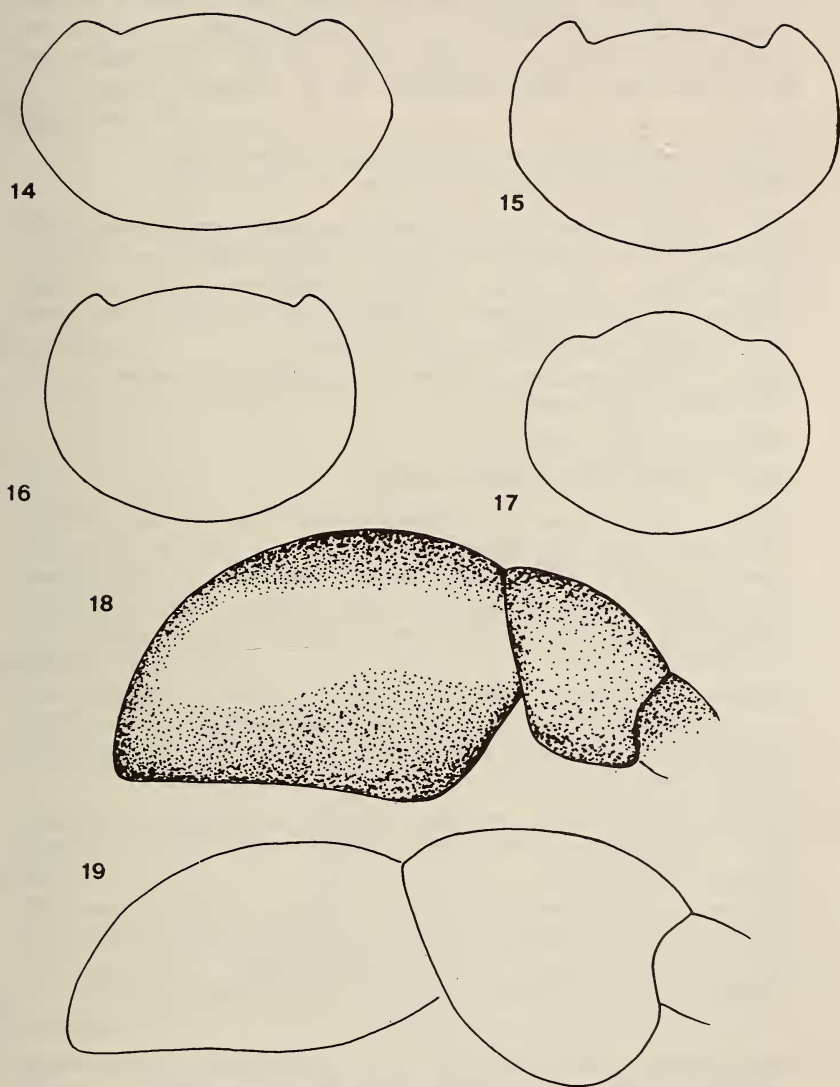
Six forms of meso- and metasternum: 2, *A. temporale* Sahlb.; 3, *A. pisanum* Bris.; 4, *A. osellai* n. sp.; 5, *A. laevigatum* Er.; 6, *A. bythinicum* n. sp.; 7, *A. leonhardianum* Roubal; *cm*, median carina; *ll*, lateral lines; *lf*, femoral lines.



FIGS. 8-13.

Head of: 8, *A. besucheti* Hlisl.; 9, *A. levantinum* n. sp.; 10, *A. immaculatum* n. sp.; 11, *A. loebli* n. sp.; 12, *A. bythinicum* n. sp. (♂); 13, *A. leonhardianum* Roubal.

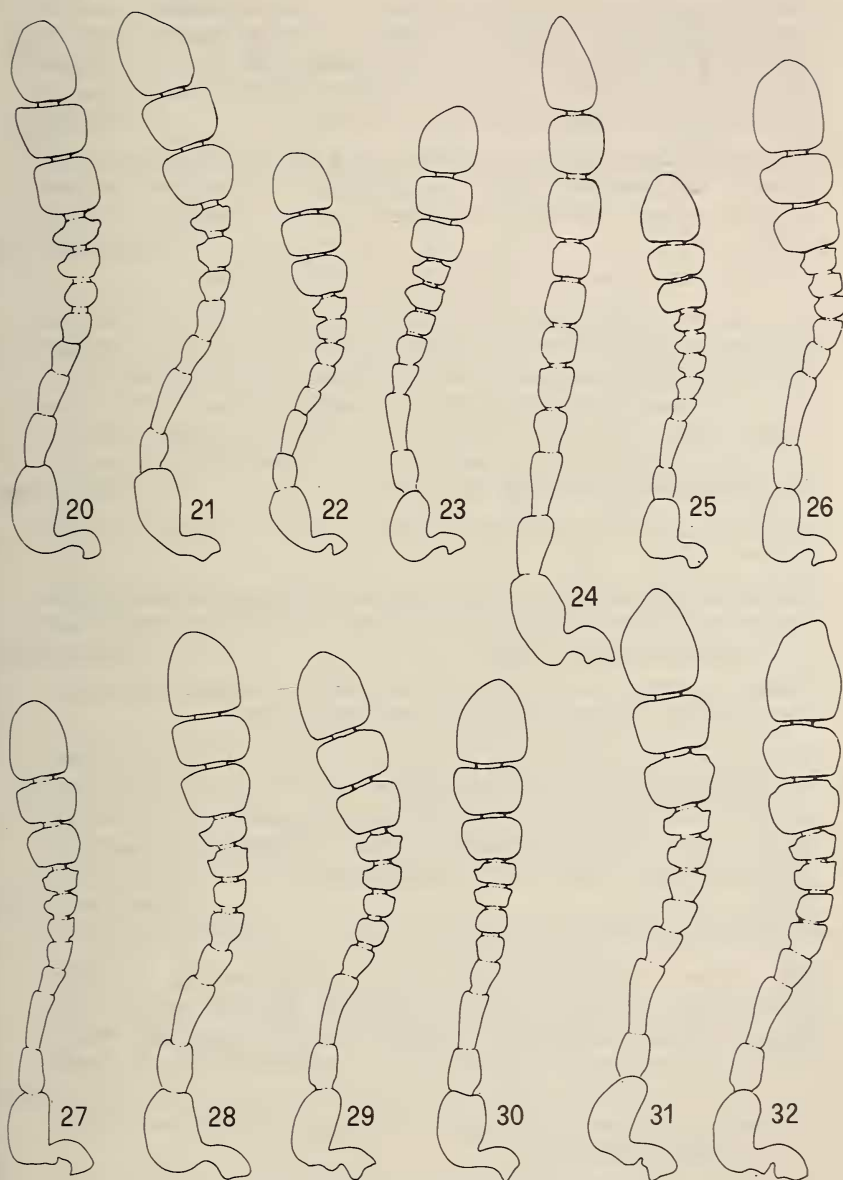
- Hlisen.: fig. 18); female tarsal formula: 5-4-4. Clypeal line fine. Dorsum black, antennae with 9th and 10th segments dark. Elytral microreticulation more superficial than on head and pronotum. Length 3,05-3,3 mm. Male copulatory organ: figs 51-52; spermatheca: fig. 61. Turkey. 4. *temporale* Sahlb.
6. — Head with clypeal line. Elytral microreticulation vague or absent at all; head and pronotum distinctly microreticulate. Membraneous wings absent. 3rd antennal segment nearly as long as the 2nd. Dorsum reddish-brown, antennae with dark club. Length 2,5-2,6 mm. Male copulatory organ: figs 53-54; spermatheca: fig. 62. Turkey 5. *osmanicum* Hlisen.
- Head without clypeal line 7
7. — Head microreticulate; antennae uniformly testaceous; membraneous wings present; bigger size: 2,4-2,6 mm. Head and pronotum reddish-brown, elytra black. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3; fig. 22). Head: fig. 10; male copulatory organ: figs 55-56; spermatheca: fig. 63. Turkey 6. *immaculatum* n. sp.
- Head without microreticulation; antennae with dark club; membraneous wings absent; smaller size: 1,95 mm. Dorsum black, reddish at sides of elytra. 3rd antennal segment a little longer than the 2nd. Turkey 7. *tauricum* Hlisen.
8. — Elytra with sutural striae, within their apical third 9
- Elytra without sutural striae 13
9. — Head with fine and superficial clypeal line. 10
- Head without clypeal line 12
10. — Pronotum sides with defined angle at middle length (from a dorsal viewpoint): fig. 14. Head and pronotum reddish-brown, elytra darker; antennae with black club. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3) and shorter than 4th + 5th. Length 2,95 mm. Male hind femura: fig. 39; male copulatory organ: figs 57-58. Turkey 8. *cottarellii* n. sp.
- Pronotum sides uniformly rounded (from a dorsal viewpoint): fig. 15. 11
11. — Head and pronotum distinctly microreticulate and punctate; elytra with microreticulation vague or absent and strongly punctate. Antennae with 9th and 10th segments a little darker. 3rd antennal segment 1,5 times as long as the 2nd and longer than 4th + 5th. Head and pronotum reddish-brown, elytra black. Apex of aedeagus broadly rounded: fig. 72; spermatheca with apical part short and increased towards apex: fig. 64. Length 2,95-3,5 mm. Europe, Turkey 9. *pisanum* Bris.
- Head superficially microreticulate and punctate; pronotum vaguely microreticulate, punctate as head; elytra very superficially microreticulate and strongly punctate as in *A. pisanum* Bris. Whole dorsum reddish-brown, antennae with 9th and 10th segments darker. 3rd antennal segment 1,5 times as long as the 2nd and longer than 4th + 5th. Apex of aedeagus with more or less abruptly convergent sides: fig. 74; spermatheca with apical part gently tapered towards apex: fig. 65. Pronotum: fig. 15. Length 2,65-3,25 mm. Europe, Turkey 10. *badium* Er.
12. — Elytra strongly microreticulate, opaque; smaller size: 2,5 mm; male hind femura distally rounded: fig. 40; membraneous wings absent. Dorsum dark reddish-brown, antennae uniformly testaceous. 3rd antennal seg-



FIGS. 14-19.

Dorsal view of pronotum and lateral outline of pronotum and elytra of: 14, *A. cottarellii* n. sp.; 15, *A. badium* Er.; 16, *A. brignolii* n. sp.; 17, *A. winkleri* Hlism.; 18, *A. besucheti* Hlism.; 19, *A. winkleri* Hlism.

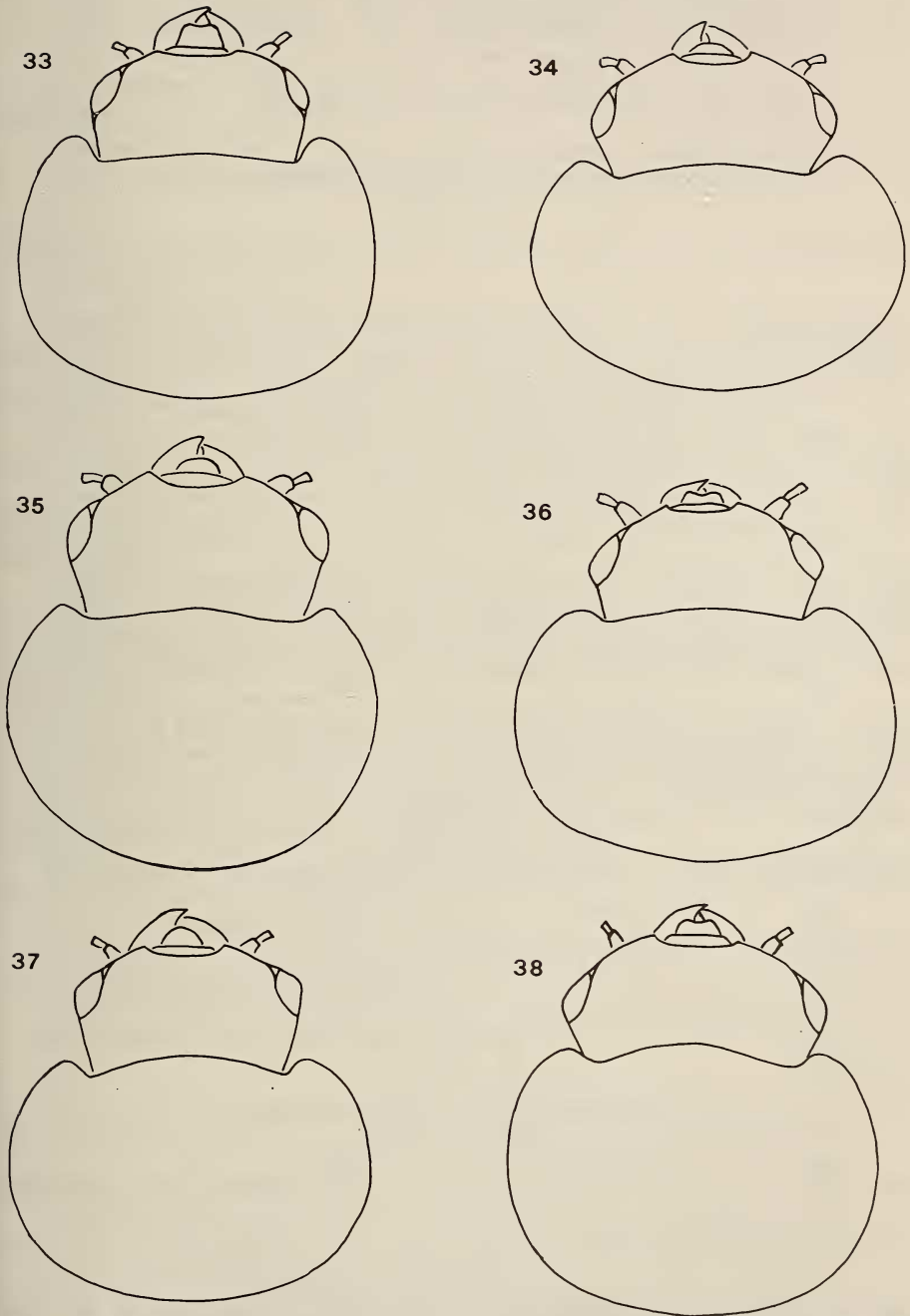
- ment a little longer than the 2nd ($3rd/2nd = 1,3$; fig. 23) and as long as 4th + 5th. Male copulatory organ: figs 75-76. Turkey 11. *osellai* n. sp.
- Elytra without microreticulation; bigger size: 3,3-3,5 mm; male hind femura with distal tooth; membranous wings present. Dorsum reddish-brown, antennae with dark club. 3rd antennal segment a little longer than the 2nd ($3rd/2nd = 1,2$) and shorter than 4th + 5th. Male copulatory organ: figs. 77-78; spermatheca: fig. 66. Caucasus, Turkey 12. *causicum* Reitter
13. — Dorsum at least partly more or less strongly microreticulate 14
 — Whole dorsum without microreticulation 20
14. — Head with fine clypeal line; 3rd antennal segment nearly as long as the 2nd (fig. 24); female tarsal formula: 4-4-4. Dorsum wholly and uniformly microreticulate. Head and pronotum reddish-brown, elytra black, antennae uniformly testaceous. Length 2,9-3,1 mm. Male copulatory organ: figs 79-80; spermatheca: fig. 67. Turkey 13. *capitatum* Hlisl.
 — Head without clypeal line; 3rd antennal segment clearly longer than the 2nd; female tarsal formula: 5-4-4 15
15. — Whole dorsum microreticulate 16
 — Part of dorsum without microreticulation 18
16. — Antennae with 9th and 10th segments dark; dorsum uniformly black; head much less broad than pronotum ($P/H = 1,65$): fig. 33; microreticulation strong and impressed on the whole dorsum; membranous wings present. Length 2,7-3,4 mm. Male copulatory organ: figs 81-82; spermatheca: fig. 68; male hind femura: fig. 41. Europe, Boreal Asia, North Africa 14. *laevigatum* Er.
 — Antennae uniformly testaceous; dorsum uniformly reddish-brown; microreticulation of head and pronotum more superficial than on elytra; head not much less broad than pronotum ($P/H = 1,3-1,5$): figs 34-35; membranous wings absent 17
17. — Pronotum much broader than long: fig. 34; male hind femura without tooth. Length 2,8-3,2 mm. Male copulatory organ: figs 83-84; spermatheca; fig. 69. Turkey 15. *tibiellum* Hlisl.
 — Pronotum not much broader than long: fig. 35; male hind femura with strong tooth at the posterior margin: fig. 42. 3rd antennal segment more than 1,5 times as long as the 2nd: fig. 25. Length 2,4-3,1 mm. Male copulatory organ: figs 85-86; spermatheca: fig. 70. Turkey, Syria 16. *denticulatum* Hlisl.
18. — Elytra without microreticulation; male hind femura with posterior margin toothed distally: fig. 43. Head and pronotum finely microreticulate. Dorsum wholly black, antennae uniformly testaceous. 3rd antennal segment nearly 1,7 times as long as the 2nd: fig. 26. Length 3-3,8 mm. Head: fig. 11; male copulatory organ: figs. 87-88; spermatheca: fig. 93. Turkey 17. *loebli* n. sp.
 — Elytra microreticulate; male hind femura distally rounded 19
19. — Head without microreticulation; dorsum reddish-brown, antennae uniformly testaceous; 3rd antennal segment nearly 1,5 times as long as the 2nd.



FIGS. 20-32.

Antenna of: 20, *A. levantinum* n. sp.; 21, *A. temporale* Sahlb.; 22, *A. immaculatum* n. sp.; 23, *A. osellai* n. sp.; 24, *A. capitatum* Hlisl.; 25, *A. denticulatum* Hlisl.; 26, *A. loebli* n. sp.; 27, *A. anaticum* n. sp.; 28, *A. bythinicum* n. sp.; 29, *A. obenbergeri* Hlisl.; 30, *A. olympicum* n. sp.; 31, *A. leonhardianum* Roubal; 32, *A. winkleri* Hlisl.

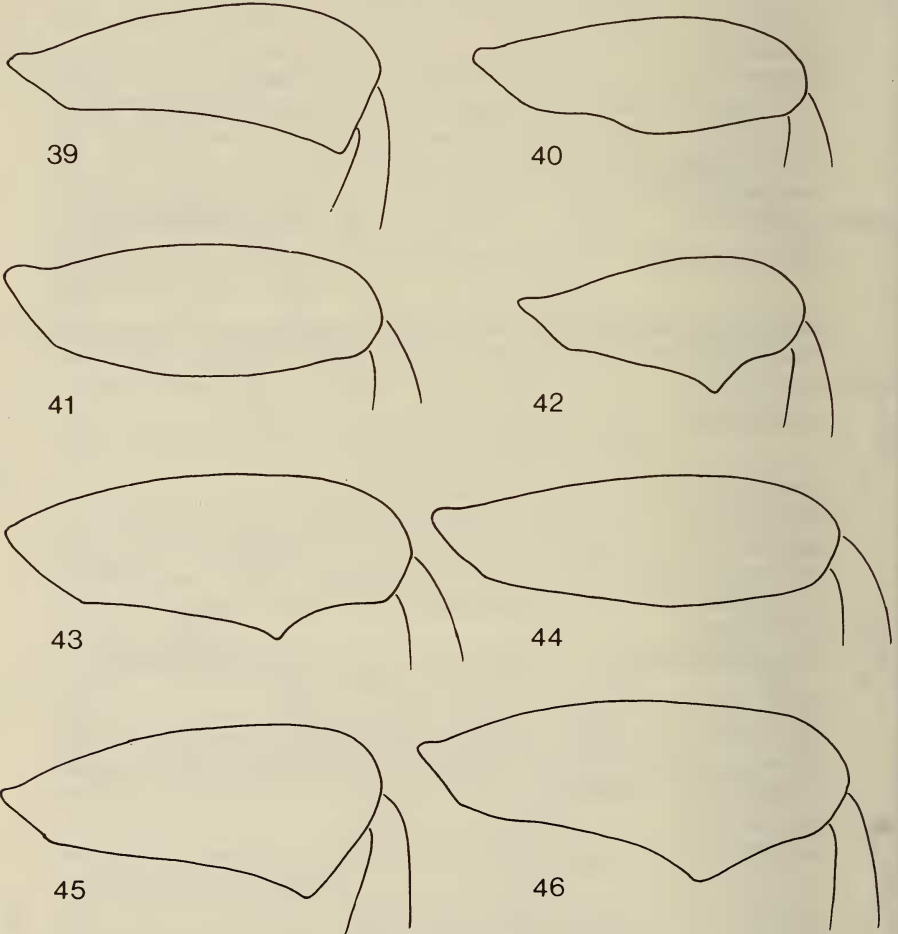
- Length 2,4-2,8 mm. Male copulatory organ: figs 89-90; spermatheca: fig. 94. Turkey 18. *antiochense* n. sp.
- Head: microreticulation vague or absent on discum, impressed near the eyes; dorsum black, reddish along lateral and medial margins of elytra; antennae uniformly testaceous; 3rd antennal segment just a little longer than the 2nd (3rd/2nd = 1,2: fig. 27). Length 3-3,4 mm. Male copulatory organ: figs. 91-92; spermatheca: fig. 95. Turkey 19. *anatolicum* n. sp.
- 20. — Head with fine clypeal line; antennae with 9th and 10th segments dark. Dorsum reddish-brown, paler on pronotum. 3rd antennal segment 1,5 times as long as the 2nd. Whole dorsum punctate. Length 2,5-2,9 mm. Turkey 20. *bodemeyeri* Hlissn.
- Head without clypeal line; antennae uniformly testaceous 21
- 21. — Eyes big and protuberant: fig. 12; clypeum of males with two transverse tubercles; male hind femura without tooth at the posterior margin: fig. 44. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3: fig. 28). Dorsum dark reddish-brown or black, antennae uniformly testaceous. Head and pronotum finely punctate; elytra with sparse punctures and long, irregular furrows. Length 3-3,4 mm. Male copulatory organ: figs 102-103; spermatheca: fig. 96. Turkey 21. *bythinicum* n. sp.
- Eyes not much big, scarcely protuberant: fig. 13. Clypeum of males without tubercles 22
- 22. — Smaller size: 2,2 mm; dorsum reddish-jellow. 3rd antennal segment twice as long as the 2nd and as long as 4th + 5th. Male hind femura without tooth at the posterior margin. Turkey 22. *turcicum* Reitter
- Bigger size: more than 2,6 mm; dorsum black or dark reddish-brown; male hind femura with one tooth at the posterior margin 23
- 23. — Pronotum much broader than long (W/L = 1,5: fig. 37). Dorsum finely and sparsely punctate. 3rd antennal segment more than 1,5 times as long as the 2nd (3rd/2nd = 1,7: fig. 29). Dorsum uniformly black or dark reddish-brown, antennae uniformly testaceous. Length 2,6-3,2 mm. Male copulatory organ: figs 104-105; spermatheca: fig. 97. Southern Italy, Turkey 23. *obenbergeri* Hlissn.
- Pronotum not much broader than long (W/L = 1,2-1,35: figs 16, 17, 38) 24
- 24. — 3rd antennal segment just a little longer than the 2nd: fig. 30. Whole dorsum black and with impressed punctures; antennae uniformly testaceous. Length 2,85-3,4 mm. Pronotum: fig. 38; male hind femura: fig. 45; male copulatory organ: figs. 106-107; spermatheca: fig. 98. Turkey 24. *olympicum* n. sp.
- 3rd antennal segment more than 1,5 times as long as the 2nd (3rd/2nd = 1,6 at least: figs 31-32) 25
- 25. — Head and pronotum finely and sparsely punctate. Dorsum uniformly black, antennae uniformly testaceous. 3rd antennal segment nearly twice as long as the 2nd: fig. 31. Pronotum not much broader than long (as in *A. olympicum* n. sp.: fig. 38). Length 3,5-4,7 mm. Head: fig. 13; male copulatory organ: figs. 108-109; spermatheca: fig. 99. Hungary, Jugoslavia, Bulgaria, Turkey 25. *leonhardianum* Roubal



FIGS. 33-38.

Dorsal view of head and pronotum of: 33, *A. laevigatum* Er.; 34, *A. tibiellum* Hlisl.; 35, *A. denticulatum* Hlisl.; 36, *A. bythinicum* n. sp.; 37, *A. obenbergeri* Hlisl.; 38, *A. olympicum* n. sp.

- Head and pronotum distinctly and strongly punctate 26
26. — Anterior margin of pronotum scarcely bent: fig. 16; elytra with some traces of microreticulation. Dorsum wholly black, antennae uniformly testaceous. 3rd antennal segment much longer than the 2nd (3rd/2nd = 1,8). Length 2,6-2,8 mm. Male copulatory organ: figs 110-111; spermatheca: fig. 100. Turkey 26. *brignolii* n. sp.
- Anterior margin of pronotum strongly bent: fig. 17; elytra at all without microreticulation. Dorsum uniformly black, distinctly punctate every-



FIGS. 39-46.

Male hind femur of: 39, *A. cottarellii* n. sp.; *A. osellai* n. sp.; 41, *A. laevigatum* Er.; 42, *A. denticulatum* Hlisl.; 43, *A. loebli* n. sp.; 44, *A. bythinicum* n. sp.; 45, *A. olympicum* n. sp.; 46, *A. leonhardianum* Roubal.

where. 3rd antennal segment much longer than the 2nd ($3rd/2nd = 1,6$: fig. 32). Length 2,9-4 mm. Body outline: fig. 19; male copulatory organ: figs 112-114; spermatheca: fig. 101. Crimea, Turkey 27. *winkleri* Hlisl.

DESCRIPTIONS OF THE SPECIES

1. *Agathidium (Cyphocele) besucheti* Hlisl. (Figs 8, 18)

Agathidium (Cyphocele) besucheti Hlislukowsky 1972, *Revue suisse Zool.* 79 (2): 829-831, figs 1-4.

Length 3,35 mm (holotype ♀). Head reddish on discum, black at sides; pronotum uniformly reddish-brown; elytra black, both of them with a longitudinal reddish band (fig. 18); venter reddish-brown, paler on pronotum; antennae and legs wholly testaceous. Whole dorsum without microreticulation, very finely and sparsely punctate.

Head: finely and superficially punctate: punctures small, spaced from each other by 2-5 times their own diameter. Greatest breadth clearly behind eyes (fig. 8). Clypeal line vague. 3rd antennal segment more than 1,5 times as long as the 2nd ($3rd/2nd = 1,6$). Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments. Eyes flattened.

Pronotum: punctures small and superficial as on head, but sparser, spaced from each other by 3-5 times their own diameter. Nearly 1,5 times as broad as head, rather broader than long ($W/L = 1,85$) and scarcely convex ($W/H = 2,2$). Anterior margin scarcely bent. Lateral outline truncate (fig. 18). Holotype: length 0,83 mm, width 1,54 mm, height 0,70 mm.

Elytra: very finely and sparsely punctate: punctures small and superficial, spaced from each other by 4-6 times their own diameter. Rather broader than pronotum, nearly as broad as long ($W/L = 0,98$) and very convex ($W/H = 1,47$). Lateral outline with conspicuous humeral angle (fig. 18). Sutural striae impressed, within the apical half. Holotype: length 1,78 mm, width 1,75 mm, height 1,19 mm.

Membraneous wings present. Meso and metasternum: median carina absent, lateral lines present, femoral lines absent.

Legs: tarsal formula: ♂ unknown, ♀ 5-4-4.

Type material: *A. besucheti* Hlisl. was described on the basis of an unic specimen (♀) from Turkey, now in Geneva Museum.

Material examined: Holotype ♀.

Distribution: Turkey (Bolu, Elmalik, 950 m).

2. *Agathidium (Neocele) pseudobescidicum* n. sp. (Figs 47, 48, 59)

Agathidium bescidicum Reitter 1885, *Verh. naturf. Ver. Brünn* 23: 115 (only the specimens from Caucasus) **nov. syn.**

Agathidium rotundulum Reitter 1885, *Verh. naturf. Ver. Brünn* 23: 116 (part of the specimens from Caucasus) **nov. syn.**

Agathidium sphaerulum Reitter 1898, *Wien. ent. Ztg.* 17: 140.

Agathidium sphaerulum, REITTER 1909, *Fauna Germ.* 2: 258, (part of the specimens from Caucasus) **nov. syn.**

Length 2,45-2,85 mm (holotype 2,8 mm). Dorsum black, reddish-brown at sides; venter reddish-brown; antennae testaceous with 9th and 10th segments darker; legs testaceous. Microreticulation absent, sometimes traces of it on elytra; whole dorsum punctate.

Head: distinctly and densely punctate: punctures rather large and impressed, spaced from each other by 1-2 times their own diameter. Clypeal line very fine, scarcely distinct. 3rd antennal segment more than 1,5 times as long as the 2nd ($3rd/2nd = 1,7$). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: punctures a little less dense and smaller than on head, but likewise impressed. 1,5 times as broad as head, very much broader than long ($W/L = 1,69$) and moderately convex ($W/H = 1,69$). Anterior margin nearly rectilinear. Lateral outline truncate. Holotype: length 0,78, width 1,32, height 0,78.

Elytra: more finely and superficially punctate than pronotum: punctures small, spaced from each other by 5-6 times their own diameter. Clearly broader than pronotum, nearly as broad as long ($W/L = 0,93$) and moderately convex ($W/H = 1,68$). Lateral outline with conspicuous humeral angle. Sutural striae distinct, within the apical third of elytra. Holotype: length 1,40 mm, width 1,45 mm, height 0,97 mm.

Membraneous wings present. Meso and metasternum: median carina slight, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 47-48): aedeagus slender, with proximal part simple, lateral margins strongly sinuate towards apex and approached into a subacute tip; ventral piece indistinct; phallobase embracing the aedeagus near the proximal end of it; parameres slender, gently tapered towards apex.

Spermatheca (fig. 59): apical part slender and thin; basal part nearly spherical, with a tubercle where is the duct connection.

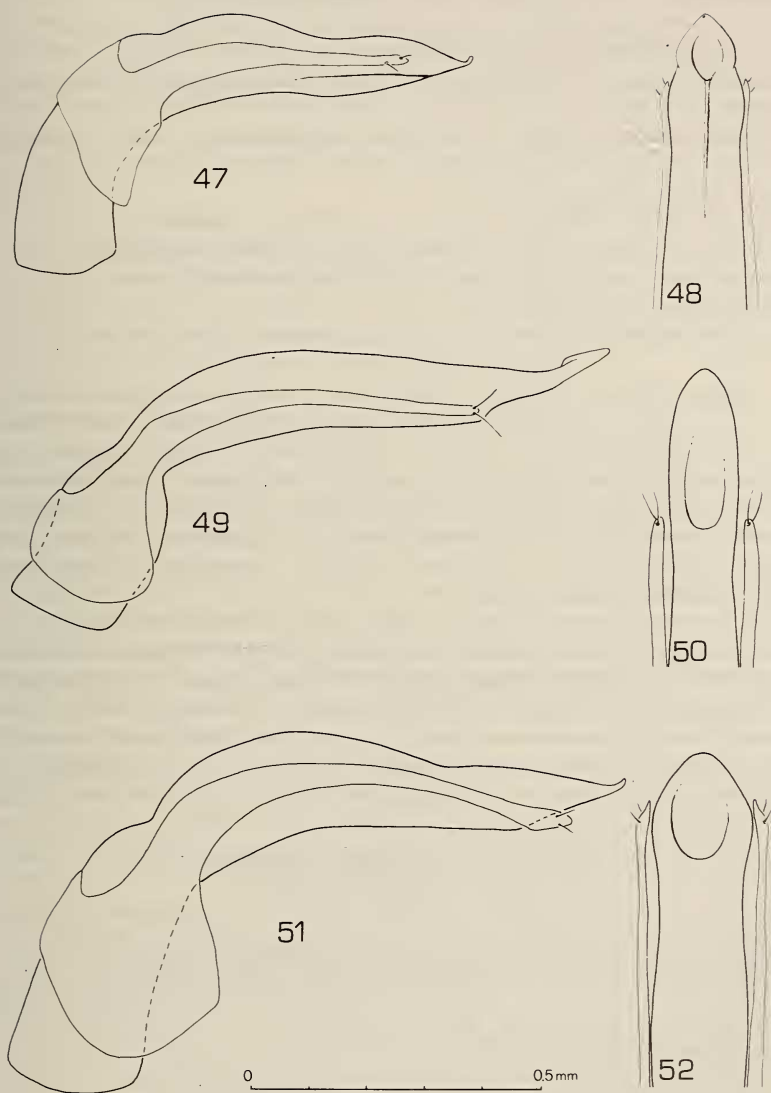
Discussion: *A. pseudobescidicum* n. sp. has in common with *A. levantinum* n. sp. and *A. temporale* Sahlb. the presence of sutural striae, but differs from them by absence of microreticulation.

Taxonomic remarks: In 1885 REITTER described *A. bescidicum* from Silesic Beskiden and Caucasus. Following Authors regarded it either as true species (GANGLBAUER 1899: 243; CSIKI 1909: 57), or subspecies of *A. rotundatum* Gyll. (HLISNIKOWSKY 1930: 66), or subspecies of *A. pseudorotundatum* Palm (HLISNIKOWSKY 1964: 71), or variety of *A. rotundatum* Gyll. (REITTER 1909: 258).

On the basis of several specimens determined as *A. rotundulum* Reitter, *A. sphaerulum* Reitter, *A. bescidicum* Reitter, *A. rotundatum* Gyll. and *A. pseudorotundatum* Palm, by REITTER and HLISNIKOWSKY, we have realized there is a complicated interlacing of synonymies, which we have concluded to solve as follows:

Agathidium rotundatum Gyllenhal, 1827

- *A. rotundulum* Reitter, 1885: Tirol, Serbia, Corsica, Caucasus (part of the specimens from Caucasus has to be ascribed to *A. pseudobescidicum* n. sp.).
- *A. rotundatum*, REITTER 1885: Europe (part of the specimens has to be ascribed to *A. bescidicum* Reitter).
- *A. sphaerulum* Reitter, 1898.
- *A. sphaerulum*, REITTER 1909: Europe, Caucasus (part of the specimens from Caucasus has to be ascribed to *A. pseudobescidicum* n. sp.).
- *A. sphaerulum*, HLISNIKOWSKY 1964: Austria, Germany, France.
- *A. rotundatum*, HLISNIKOWSKY 1964: Norway, Finland.



FIGS. 47-52.

Male copulatory organ (lateral view and ventral view of apex) of: 47-48, *A. pseudobescidicum* n. sp.; 49-50, *A. levantinum* n. sp. (Bolu, Omerler); 51-52, *A. temporale* Sahlb. (holotype).

Agathidium bescidicum Reitter, 1885

- *A. bescidicum* Reitter, 1885: only the specimens from Beskiden (the specimens from Caucasus have to be ascribed to *A. pseudobescidicum* n. sp.).
- *A. rotundatum*, REITTER 1885: Europe (part of the specimens), **nov. syn.**
- *A. pseudorotundatum* Palm, 1946, **nov. syn.**
- *A. pseudorotundatum*, HLISNIKOWSKY 1964: Czechoslovakia, Prussia-Pozyzawska, Romania.
- *A. pseudorotundatum* subsp. *bescidicum*, HLISNIKOWSKY 1964: Czechoslovakia.

Agathidium pseudobescidicum n. sp.

- *A. bescidicum* Reitter, 1885: only the specimens from Caucasus.
- *A. rotundulum* Reitter, 1885: part of the specimens from Caucasus.
- *A. sphaerulum* Reitter, 1898.
- *A. sphaerulum*, REITTER 1909: part of the specimens from Caucasus.

In considering that the type specimens of *A. bescidicum* Reitter seem to be lost (we have asked for them the following Museums: Basel, Berlin, Bratislava, Budapest, Copenhagen, Geneva, Helsinki, Munich, Paris, Prague, Stuttgart, Uppsala, Vienna), we designate the neotype of this species. It is a specimen from Beskiden, found in coll. Grouvelle-Reitter, determined as *A. bescidicum*, now labelled as follows: "Bes-ciden", "439", "Museum Paris, coll. Grouvelle 1917", "*Agathidium* ♂ N. 1643, ANGELINI-DE MARZO *studuerunt* 1981", "*Neotypus Agathidium (Neocele) bescidicum* Reitter, ANGELINI-DE MARZO *designav.* 1981".

In coll. Grouvelle-Reitter we have found another specimen ♂ determined as *A. bescidicum*, coming from Caucasus, which we designate paratype of *A. pseudobescidicum* n. sp. It is now labelled as follows: "Kaukas, Leder", "Museum Paris, coll. Grouvelle 1917", "439", "*Agathidium* ♂ N. 1509, ANGELINI-DE MARZO *studuerunt* 1981", "Paratypus *Agathidium (Neocele) pseudobescidicum* n. sp., ANGELINI-DE MARZO *determin.* 1981".

Type material: TURKEY, Bolu, Abant, 1500-1600 m, 3 ♂, Besuchet and Löbl, 22.V.1976 (holotype N. 1664 and 1 paratype N. 1663 in Geneva Museum; 1 paratype N. 1662 in coll. Angelini); Kastamonu, Kure, 5 Km south, 1200 m, 1 ♂ and 1 ♀, Besuchet and Löbl, 18.V.1976 (paratype ♂ N. 1665 in Geneva Museum, paratype ♀ N. 1666 in coll. Angelini). CAUCASUS, legit Leder, 1 ♂ (paratype N. 1509 in coll. Grouvelle-Reitter, Paris Museum = *A. bescidicum* det. Reitter); 2 ♂ and 2 ♀ (paratypes N. 2448-2451 in coll. Angelini); 1 ♂, legit Leder (paratype N. 1633 in coll. Reitter, Budapest Museum = *A. sphaerulum* det. Reitter); Daghestan, 1 ♂, legit Leder (paratype N. 1632 in coll. Reitter, Budapest Museum = *A. sphaerulum* det. Reitter); Armen Mount., 1 specimen, legit Leder (paratype coll. Reitter, Budapest Museum = *A. rotundatum* det. Reitter).

Distribution: Turkey, Caucasus.

3. Agathidium (Neocele) levantinum n. sp.

(Figs 9, 20, 49, 50, 60)

Length 2,85 mm (holotype and paratype). Head and pronotum uniformly reddish-brown, elytra darker; venter reddish-brown, paler on mesosternum; antennae testaceous with 9th and 10th segments darker; legs testaceous. Pronotum and elytra very superficially microreticulate; whole dorsum punctate.

Head: uniformly and regularly punctate: punctures rather large, superficial, spaced from each other by 1-2 times their own diameter. Greatest breadth a little behind eyes (fig. 9). Clypeal line fine and scarcely impressed. 3rd antennal segment shorter than the 2nd ($3rd/2nd = 0,81$, fig. 20). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation very superficial or in traces; uniformly and regularly punctate: punctures more superficial than on head and half time so large, spaced from each other by 4-8 times their own diameter. 1,5 times as broad as head, broader than long ($W/L = 1,71$) and moderately convex ($W/H = 1,77$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 0,83 mm, width 1,42 mm, height 0,80 mm.

Elytra: microreticulation superficial, but more impressed than on pronotum; punctures as large as on head, very superficial, very sparse near the scutellum but denser at apex. Just a little less broad than pronotum, nearly as broad as long ($W/L = 0,97$) and very much convex ($W/H = 1,25$). Lateral outline with conspicuous humeral angle. Sutural striae scarcely impressed but distinct, within the apical third of elytra. Holotype: length 1,42 mm, width 1,38 mm, height 1,10 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: tarsal formula: ♂ 5-5-4, ♀ 4-4-4.

Male copulatory organ (figs 49, 50): aedeagus slender, with basal part simple, lateral margins nearly parallel and gently approached into a rounded tip, ventral piece indistinct; parameres slender, gently tapered towards apex; phallobase embracing the proximal part of the aedeagus.

Spermatheca (fig. 60): apical part slender and tapered towards apex; basal part pear-shaped, not much fatter than the apical one.

Discussion: *A. levantinum* n. sp. has in common with *A. temporale* Sahlb. the presence of sutural striae and the microreticulation characters. Nevertheless it is easily separable from the latter by where head shows its greatest breadth and by ratio between 3rd and 2nd antennal segments.

Type material: TURKEY, Bolu, Omerler, 800 m, 1 ♂ and 1 ♀, Besuchet and Löbl, 21.V.1976 (holotype ♂ N. 1667 in Geneva Museum; paratype ♀ in coll. Angelini).

4. *Agathidium (Neoceble) temporale* Sahlb.

(Figs 2, 21, 51, 52, 61)

Agathidium (Cyphocele) temporale Sahlberg, 1908, *Öfvers. Vet. Soc. Förth.* 50 (7): 50.
Agathidium (Cyphocele) temporale: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 26-27.

Length 3,05-3,3 mm (holotype 3,15 mm). Head dark reddish-brown, black at sides; pronotum dark reddish-brown, less dark at sides; elytra black; venter dark reddish-brown, paler on mesosternum; antennae testaceous with dark club; legs testaceous. Whole dorsum microreticulate and punctate.

Head: microreticulation superficial; distinctly punctate: punctures rather large, scarcely impressed, spaced from each other by 1-5 times their own diameter. Clypeal line vague. 3rd antennal segment more than 1,5 times as long as the 2nd ($3rd/2nd = 1,8$, fig. 21). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation as superficial as on head; punctures smaller than on head and superficial, spaced from each other by 2-6 times their own diameter. 1,5 times

as broad as head, much broader than long ($W/L = 1,86$) and moderately convex ($W/H = 1,7$). Anterior margin scarcely bent. Lateral outline truncate. Holotype: length 0,82 mm, width 1,52 mm, height 0,90 mm.

Elytra: microreticulation vague but present everywhere; punctures as large as on pronotum, spaced from each other by 3-4 times their own diameter. A little broader than pronotum, nearly as broad as long and very convex ($W/H = 1,45$). Lateral outline with conspicuous humeral angle. Sutural striae fine but distinct, within the apical half of elytra. Holotype: length 1,60 mm, width 1,66 mm, height 1,14 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 51, 52): aedeagus slender, with proximal part simple, lateral margins a little sinuate near apex and gently approached into a rounded tip; ventral piece indistinct; parameres slender, a little increased at apex; phallobase embracing the aedeagus near its proximal end.

Spermatheca (fig. 61): apical part very slender and twisted; basal part shorter and not much fatter.

Discussion: see what already noted for *A. levantinum* n. sp. The male copulatory organ of *A. temporale* Sahlb. is similar to those of *A. immaculatum* n. sp. and *A. osmanicum* Hlisl., but there are very different spermathecae.

Type material: Holotype ♂ from Bulgar Dag, in Helsinki Museum.

Material examined: TURKEY, Antalya, 20 Km north Manavgat, 18 specimens, Besuchet and Löbl, 18-26.IV.1978 (in Geneva Museum and coll. Angelini); holotype from Bulgar Dag.

Distribution: Turkey.

5. *Agathidium (Neocele) osmanicum* Hlisl.

(Figs 53, 54, 62)

Agathidium (Neocele) osmanicum Hlisl. Hlisl., 1972, *Revue suisse Zool.* 79 (2): 831-832, figs 5, 6.

Length 2,5-2,6 mm (holotype 2,5 mm). Whole dorsum reddish-brown, venter paler; antennae testaceous with darker club; legs testaceous. Head and pronotum with distinct microreticulation, elytra with traces of it; whole dorsum punctate.

Head: microreticulation superficial, more impressed at sides; finely, regularly and wholly punctate: punctures small and superficial, spaced from each other by 2-3 times their own diameter. Clypeal line vague. 3rd antennal segment nearly as long as the 2nd. Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments.

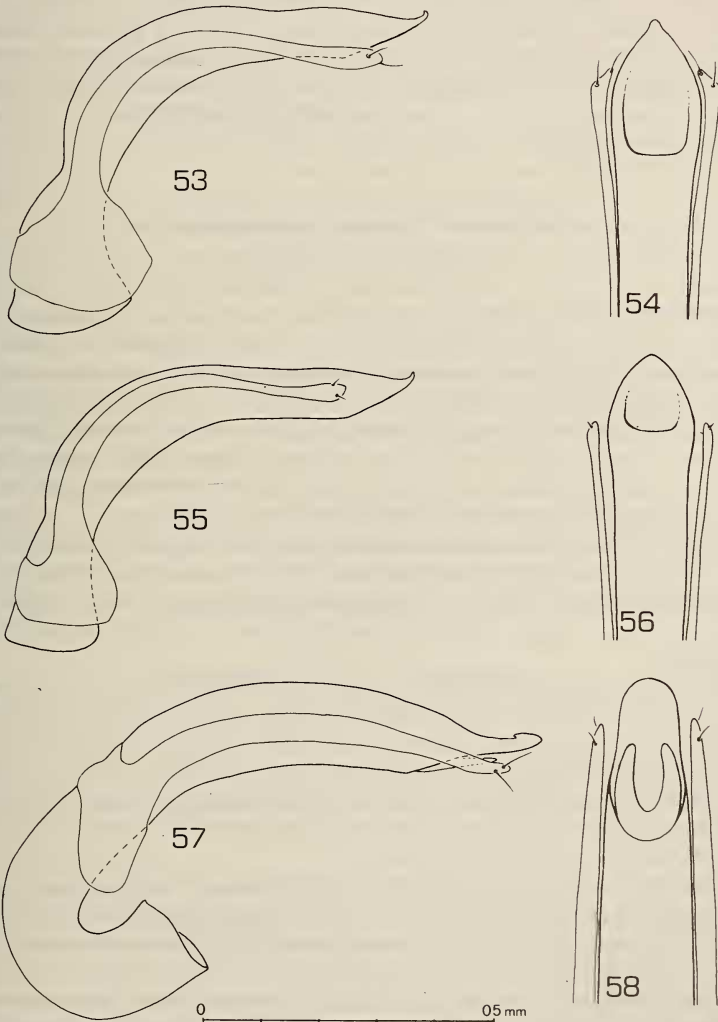
Pronotum: microreticulation a little more impressed than on head; more sparsely punctate than head; punctures a little larger than on head but more superficial, spaced from each other by 2-4 times their own diameter. 1,5 times as broad as head, broader than long ($W/L = 1,69$) and moderately convex ($W/H = 1,69$). Anterior margin rather bent. Lateral outline truncate. Holotype: length 0,72 mm, width 1,22 mm, height 0,72 mm.

Elytra: microreticulation vague but present everywhere; very finely and sparsely punctate: punctures smaller and more superficial than on pronotum, spaced from each other by 2-6 times their own diameter. Just a little broader than pronotum, as broad as long and very convex ($W/H = 1,35$). Lateral outline with conspicuous humeral angle. Sutural striae absent. Holotype: length 1,23 mm, width 1,26 mm, height 1,02 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 53, 54): aedeagus slender, a little increased near apex, with proximal part simple and lateral margins gently convergent into a small semi-circular tip; ventral piece indistinct; parameres slender, a little increased at apex; phallobase embracing the aedeagus near the proximal end of it.



FIGS. 53-58.

Male copulatory organ (lateral view and ventral view of apex) of: 53-54, *A. osmanicum* Hlisen. (holotype); 55-56, *A. immaculatum* n. sp.; 57-58; *A. cottarellii* n. sp.

Spermatheca (fig. 62): apical part slender, short and tapered towards apex; basal part fat, nearly twice as long as the former, with slight tubercle where is the duct connection.

Discussion: *A. osmanicum* Hlissn. differs from *A. immaculatum* n. sp. and *tauricum* Hlissn. by the presence of clypeal line.

Type material: *A. osmanicum* Hlissn. was described on the basis of five specimens from Bursa-Uludag (holotype ♂ and 1 paratype ♀) and Bursa (1 ♂ and 2 ♀ paratypes). We have examined holotype and two paratypes from Bursa-Uludag and Bursa.

Material examined: TURKEY, Istanbul, between Yalova and Orhangazi, 1 specimen, legit Besuchet, 11.V.1976; Kastamonu, 5 Km north Küre, 600 m, 1 specimen, Besuchet and Löbl, 18.V.1976; Kastamonu, 13 Km east Agli, 1200 m, 1 specimen, Besuchet and Löbl, 18.V.1976; Sinop, south Bektas, 1100 m, 1 specimen, Besuchet and Löbl, 20.V.1976; Sinop, Lala near Sinop, 2 specimens, Besuchet and Löbl, 20.V.1976; Kastamonu, south Inebolu, 600 m, 1 specimen, Besuchet and Löbl, 18.V.1976.

Distribution: Turkey.

6. *Agathidium (Neocelebe) immaculatum* n. sp.

(Figs 10, 22, 55, 56, 63)

Length 2,45-2,6 mm (holotype 2,45 mm). Head reddish-brown, pronotum less dark; elytra black, reddish at apex and along the suture; venter reddish-brown, paler on mesosternum; antennae and legs dark testaceous. Whole dorsum microreticulate and punctate.

Head: microreticulation distinct and regular, not much impressed; regularly punctate: punctures not very large, impressed, spaced from each other by 2-6 times their own diameter. Clypeal line very vague. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3, fig. 22). Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments. Greater breadth of head at eyes (fig. 10).

Pronotum: microreticulation as on head; finely and regularly punctate: punctures a little smaller and less spaced than on head. Much broader than head (PH/ = 1,6), much broader than long (W/L = 1,85) and scarcely convex (W/H = 1,93). Anterior margin scarcely bent. Lateral outline truncate. Holotype: length 0,68 mm, width 1,26 mm, height 0,65 mm.

Elytra: microreticulation and puncturation as on head. Just a little broader than pronotum, a little broader than long (W/L = 1,1) and moderately convex (W/H = 1,62). Lateral outline with conspicuous humeral angle. Sutural striae absent. Holotype: length 1,18 mm, width 1,30 mm, height 0,80 mm.

Membraneous wings present. Meso and metasternum: median carina present, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 55, 56): aedeagus slender, with proximal part simple, apex a little increased (dorsal viewpoint), lateral margins gently convergent into a subacute tip; ventral piece indistinct; parameres slender, a little increased at apex; phallobase embracing the aedeagus near the proximal end of it.

Spermatheca (fig. 63): apical part slender and twisted, much shorter than the basal one; the latter pear-shaped, with slight tubercle where is the duct connection.

Discussion: *A. immaculatum* n. sp. is related to *A. osmanicum* Hlissn. and *A. tauricum* Hlissn. by habitus and characters of microreticulation and puncturation. From *osmanicum* it is easy separable by lack of clypeal line; from *tauricum* it differs by presence of microreticulation on head, bigger size and antennae colouring.

Type material: TURKEY, Antalya, Yenice, 700 m, 1 ♂, Besuchet and Löbl, 3.V.1975 (holotype N. 1690 in Geneva Museum); Kastamonu, Ilgazdag Diphan, 1300 m, 1 ♀, Besuchet and Löbl, 17.V.1976 (paratype N. 2021 in coll. Angelini).

7. *Agathidium* (*Neocele*) *tauricum* Hlisl.

Agathidium (*Neocele*) *tauricum* Hlislukowsky 1972, *Revue suisse Zool.* 79 (2): 833-834, figs. 7-10

From the original description

"Length 1,95 mm. Small size, strongly roundish. Piceous black, sides and elytra transparent reddish-brown, antennae reddish-brown, 9th and 10th antennal segments black; mandibulae and legs reddish-brown.

Head: large, puncturation double: larger punctures well impressed and spaced from each other by 1-2 times their own diameter; smaller punctures very superficial and spaced from each other as much as their own diameter; between two punctures of larger size there are interposed 5-8 punctures of small size; antennae short with 3rd segment 1,3 times as long as the 2nd and as long as 4th + 5th; clypeal line absent.

Pronotum: wholly microreticulate; puncturation fine and sparse: punctures spaced from each other by 2-3 times their own diameter; much broader than long (nearly 2 times) and scarcely convex.

Elytra: microreticulation fine; punctures more impressed than on pronotum, sparse, spaced from each other by 2-4 times their own diameter; as broad as pronotum and as broad as long; humeral angle strong but broadly rounded; sutural striae absent.

Membraneous wings absent.

Legs: tarsal formula: ♂ 5-5-4, ♀ unknown."

Discussion: *A. tauricum* Hlisl. is easily separable from *A. immaculatum* n. sp. by antennae colouring, lack of membraneous wings and smaller size.

Type material: *A. tauricum* Hlisl. Was described on the basis of an unic specimen (♂) from Turkey (Kali Dag, Orta Toroslar, 2000 m), now in coll. Hlislukowsky, Prague Museum.

8. *Agathidium* (*s. str.*) *cottarellii* n. sp.

(Figs 14, 39, 57, 58)

Length 2,95 mm (holotype). Head and pronotum reddish-brown, elytra darker; venter pale; antennae testaceous, with dark club, legs testaceous. Head with superficial microreticulation, pronotum with vague traces of it, elytra without microreticulation; whole dorsum punctate.

Head: microreticulation superficial but distinct; puncturation fine and regular: punctures small, scarcely impressed, spaced from each other by 3-6 times their own diameter. Clypeal line vague. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3). Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments.

Pronotum: only vague traces of microreticulation; very finely and sparsely punctate: punctures very small, superficial, spaced from each other by 3-8 times their own diameter. Much broader than head (P/H = 1,9), much broader than long (W/L = 1,81, fig. 40) and moderately convex (W/H = 1,63). Sides with distinct angle at middle length (dorsal viewpoint, fig. 14). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 0,88 mm, width 1,60 mm, height 0,98 mm.

Elytra: regularly and strongly punctate: punctures large, and well impressed, spaced from each other by 2-4 times their own diameter. Less broad than pronotum, as broad as long and scarcely convex ($W/H = 2$). Lateral outline with slight and broadly rounded humeral angle. Sutural striae fine and vague, within the apical third of elytra. Holotype: length 1,42 mm, width 1,50 mm, height 0,75 mm.

Membraneous wings present. Meso- and metasternum: median carina present, lateral lines present, femoral lines incomplete (form B, fig. 3).

Legs: male hind femura with strong distal tooth (fig. 39); tarsal formula: ♂ 5-5-4, ♀ unknown.

Male copulatory organ (figs 57, 58): aedeagus slender, with hook-like proximal part, lateral margins a little sinuate near apex and approached into a broadly rounded tip, U-shaped ventral piece; parameres slender, gently tapered towards apex.

Discussion: *A. cottarellii* n. sp. is related to *A. pisanum* Bris. and *A. badium* Er. by characters of microreticulation and puncturation; its male copulatory organ is very similar to that of *A. pisanum*. Nevertheless it is easily separable by pronotum shape and colouring of antennal club.

Type material: TURKEY, Kastamonu, Ilgazdag, 1775 m, 1 ♂, legit Cottarelli, 30.V.1969 (holotype N. 1703 in Univ. Inst. Zool. Museum, Rome).

Derivatio nominis: dedicated to Prof. V. Cottarelli.

9. *Agathidium* (*s. str.*) *pisanum* Bris.

(Figs 3, 64, 71, 72)

Agathidium pisanum Brisout, 1872, *Annls. Soc. ent. Fr.* (5), 2: 181-182

Agathidium (*s. str.*) *pisanum*: HLISNIKOWSKY 1964, *Acta ent. Mus. Nat. Pragae*, suppl. 5: 224-226

Agathidium bicolor Sahlberg, 1880, *Medd. Soc. Fauna Flora fenn.* 5: 254

Agathidium (*s. str.*) *bicolor*: HLISNIKOWSKY 1964, *Acta ent. Mus. Nat. Pragae*, suppl. 5: 230-231

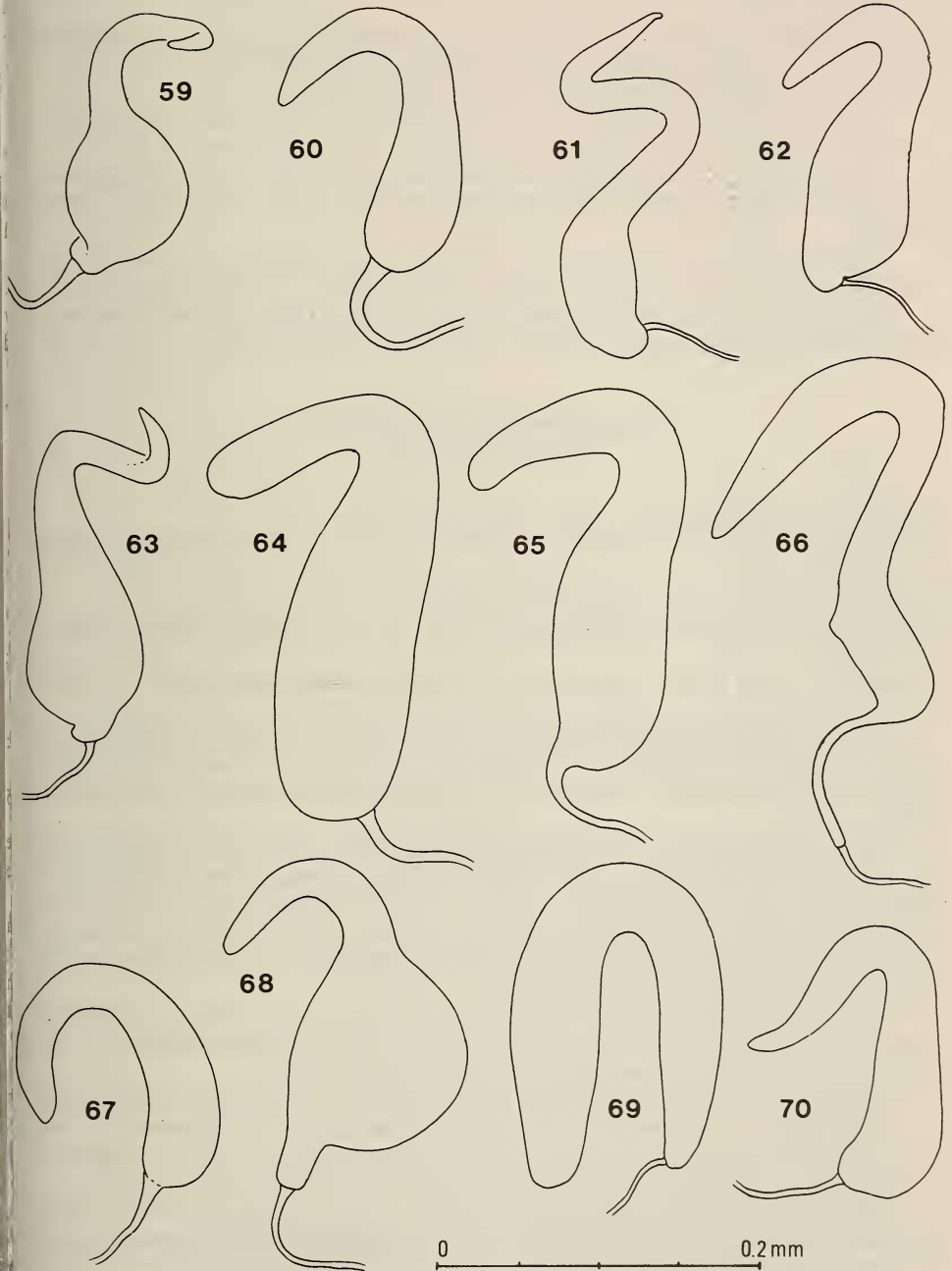
Agathidium (*s. str.*) *pisanum*: ANGELINI & DE MARZO 1980, *Entomologica* 16: 71-75

We give here a concise description of this species, particularly regarding the Turkish specimens. Holotype description and some remarks about the variability are reported in a preceding paper (ANGELINI & DE MARZO 1980).

Length 2,95-3,5 mm. Whole dorsum very dark reddish-brown or black, venter a little paler; antennae testaceous, with 9th and 10th segments dark. 3rd antennal segment about 1,5 times as long as the 2nd; Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments. Clypeal line vague. Microreticulation of head and

FIGS. 59-70.

Spermatheca of: 59, *A. pseudobescidicum* n. sp. (Kastamonu, Küre); 60, *A. levantinum* n. sp.; 61, *A. temporale* Sahlb. (Antalya, Manavgat); 62, *A. osmanicum* Hlisen. (Lala near Sinop); 63, *A. immaculatum* n. sp.; 64, *A. pisanum* Bris. (Bolu, Abant); 65, *A. badium* Er. (Bolu, Omerler); 66, *A. caucasicum* Reitter (paratype from Daghestan); 67, *A. capitatum* Hlisen. (paratype from Trabzon-Yomra) 68, *A. laevigatum* Er.; 69, *A. tibiellum* Hlisen. (paratype from Artwin Findikli); 70, *A. denticulatum* Hlisen.



pronotum distinct; only traces of it on elytra. Puncturation on the whole dorsum: fine and regular on head and pronotum, stronger on elytra. Sutural striae slight, within the apical third of elytra.

Membraneous wings present. Meso and metasternum: form B, fig. 3. Male hind femura with strong distal tooth (as in *A. cottarellii* n. sp., fig. 39); tarsal formula: ♂ 5-5-4, ♀ 5-4-4. Male copulatory organ: figs 71-72; spermatheca: fig. 64.

Discussion: see what already noted for *A. cottarellii* n. sp. The shape of spermatheca is the most reliable character to separate *A. pisanum* Bris. from *A. badium* Er.

Type material: *A. pisanum* Bris. was described on the basis of an unic specimen (♂) from Pisa (Central Italy), which we have examined, now in coll. Brisout, Paris Museum.

Material from Turkey: TURKEY, Bolu, Abant, 1500-1600 m, 3 ♀, Besuchet and Löbl, 22.V.1976.

Distribution: Europe (we have directly verified: Sweden, Finland, Poland, Germany, Italy, Austria, Czechoslovakia, Hungary, Jugoslavia, Russia), Turkey.

10. *Agathidium* (*s. str.*) *badium* Er.

(Figs 15, 65, 73, 74)

Agathidium badium Erichson, 1848, *Naturg. Ins. Deut.*, 3: 98

Agathidium (*s. str.*) *badium*: HLISNIKOWSKY 1964, *Acta Ent. Mus. nat. Pragae*, suppl. 5: 140-142

Agathidium opuntiae Reitter, 1885, *Verh. naturf. Ver. Brünn* 23: 113

Agathidium (*s. str.*) *opuntiae*: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 165-167

Agathidium (*s. str.*) *badium*: ANGELINI & DE MARZO 1980, *Entomologica* 16: 65-70.

We give here a concise description of this species, particularly regarding the Turkish specimens. Description of lectotype and paralectotype, together with some remarks about the variability, are reported in a preceding paper (ANGELINI & DE MARZO 1980).

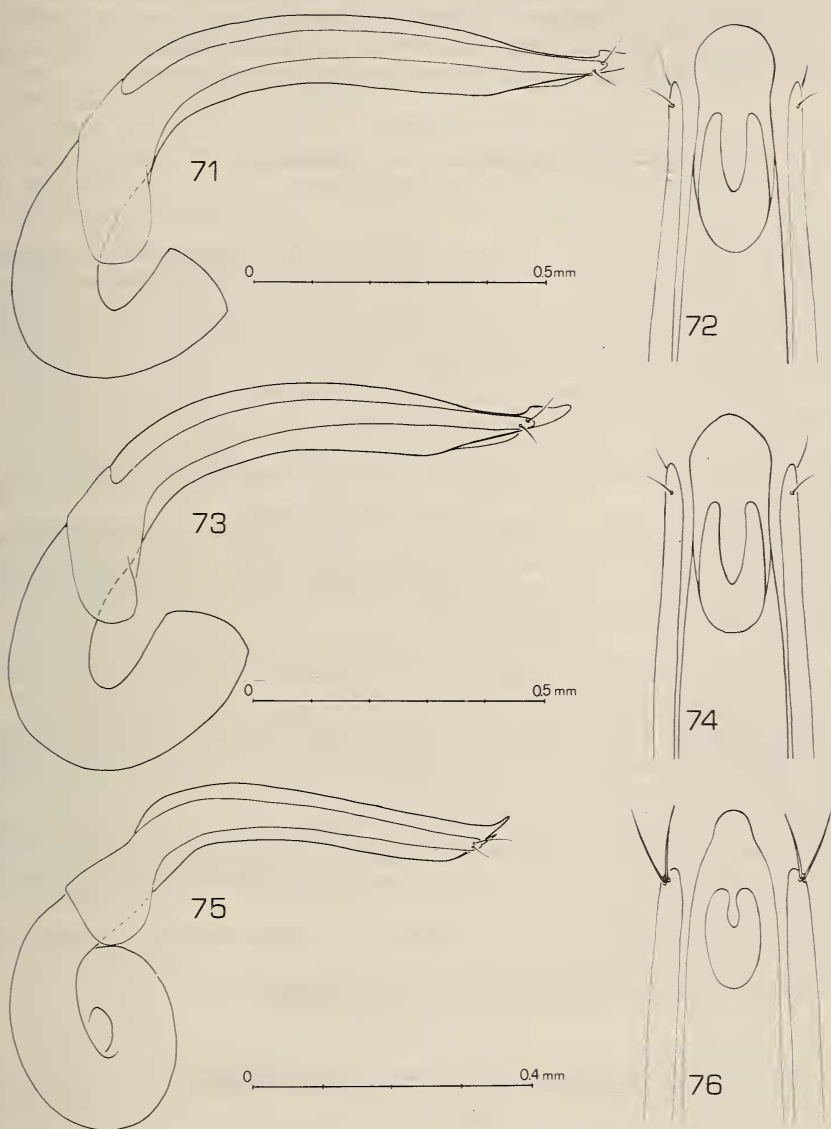
Length 2,65-3,25 mm. Whole dorsum reddish-brown, venter paler; antennae and legs testaceous. 3rd antennal segment about 1,5 times as long as the 2nd. Hamann's organ: gutter with two vesicles in both 9th and 10th antennal segments. Clypeal line vague. Microreticulation superficial but distinct on head, only traces of it on pronotum and elytra. Puncturation fine and sparse on head and pronotum, strong on elytra. Sutural striae slight, within the apical third of elytra.

Membraneous wings present. Meso- and metasternum: form B, fig. 3. Male hind femura with strong distal tooth (as in *A. cottarellii* n. sp., fig. 39); tarsal formula: ♂ 5-5-4, ♀ 5-4-4. Male copulatory organ: figs 73, 74; spermatheca: fig. 65.

Discussion: see what already noted for *A. cottarellii* n. sp. and *A. pisanum* Bris.

Type material: *A. badium* Er. was described on the basis of six specimens (3 ♂ and 3 ♀) from Europe and Banat, now in coll. Erichson, Berlin Museum. We have designated lectotype and paralectotype in a preceding paper (ANGELINI & DE MARZO 1980).

Material from Turkey: TURKEY, Bursa, Uludag, 17 km from Bursa, 1100 m, 2 specimens, Besuchet and Löbl, 13.V.1976; Sakarya, Şerefiye, 20 km south Adapazari, 3 specimens, Besuchet and Löbl, 14.V.1976; Bolu, Abant, 1500-1600 m, 2 specimens, Besuchet and Löbl, 22.V.1976; Bolu, Omerler near Bolu, 800 m, 2 specimens, Besuchet and Löbl, 21.V.1976; Kastamonu, Küre, 5 km north, 600 m, 1 specimen, Besuchet and



FIGS. 71-76.

Male copulatory organ (lateral view and ventral view of apex) of: 71-72, *A. pisanum* Bris. (Bolu, Abant); 73-74, *A. badium* Er. (Bolu, Omerler); 75-76, *A. osellai* n. sp.

Löbl, 18.V.1976; Kastamonu, Kure, 5 km south, 1200 m, 2 specimens, Besuchet and Löbl, 18.V.1976; Kastamonu, Ilgazdag, 1800-2300 m, 3 specimens, M. and G. Osella, 6-10.VII.1978; Sinop, Lala near Sinop, 2 specimens, Besuchet and Löbl, 20.V.1976; Antalya, 20 km north Manavgat, 3 specimens, Besuchet and Löbl, 26.IV.1978.

Distribution: Europe (we have directly verified: France, Germany, Italy, Austria, Czechoslovakia, Hungary, Jugoslavia, Romania, Greece), Turkey.

11. *Agathidium* (*s. str.*) *osellai* n. sp.

(Figs 4, 23, 40, 75, 76)

Length 2,5 mm (holotype). Dorsum uniformly dark reddish-brown, venter paler; antennae and legs testaceous. Whole dorsum microreticulate; punctate only on head.

Head: microreticulation strong and uniform; puncturation fine and sparse: punctures small and superficial, spaced from each other by 3-10 times their own diameter. Clypeal line absent. 3rd antennal segment a little longer than the 2nd ($3rd/2nd = 1,3$, fig. 23). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation strong and uniform as on head. Rather broader than head ($P/H = 1,4$), moderately broader than long ($W/L = 1,57$) and moderately convex ($W/H = 1,78$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 0,75 mm, width 1,18 mm, height 0,66 mm.

Elytra: microreticulation as on head. Just a little broader than pronotum, as broad as long and scarcely convex ($W/H = 2,05$). Lateral outline with slight and broadly rounded humeral angle. Sutural striae vague, within the apical third. Holotype; length 1,20 mm, width 1,23 mm, height 0,60 mm.

Membraneous wings absent. Meso- and metasternum: median carina absent, lateral lines present, femoral lines complete (form C, fig. 4).

Legs: male hind femura as in fig. 40; tarsal formula: ♂ 5-5-4, ♀ unknown.

Male copulatory organ (figs 75, 76): aedeagus slender, with spiral-like proximal part, lateral margins approached towards apex into a truncate tip, ventral piece bifid; parameres slender, gently tapered towards apex.

Discussion: *A. osellai* n. sp. does not show any important affinity with *A. cottarellii* n. sp., *A. pisanum* Bris. and *A. badium* Er., from which it differs (together with *A. caucasicum*) by absence of clypeal line. From *A. caucasicum* Reitter it differs by the strong elytral microreticulation and by size.

Type materiale: TURKEY, Soumela, Trabzon, 1 ♂, legit G. Osella, 14.VI.1969 (holotype N. 1702 in Civic Museum of Verona).

Derivatio nominis: dedicated to Dr. Giuseppe Osella.

12. *Agathidium* (*s. str.*) *caucasicum* Reitter

(Figs 66, 77, 78)

Agathidium caucasicum Reitter, 1885, *Verh. naturf. Ver. Brünn* 23: 111

Agathidium (*s. str.*) *caucasicum*: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 152-153, figs 209-212

Length 3,3-3,5 mm (holotype ♂ 3,45 mm). Dorsum more or less dark reddish-brown: in some specimens, elytra black, reddish at apex and along the suture; venter reddish-brown, paler on mesosternum; antennae testaceous with 9th and 10th segments

darker; legs testaceous. Microreticulate only on head and pronotum; whole dorsum punctate.

Head: uniformly and superficially microreticulate; distinctly and regularly punctate: punctures small and scarcely impressed, spaced from each other by 3-4 times their own diameter. Clypeal line very vague. 3rd antennal segment a little longer than the 2nd ($3rd/2nd = 1,2$) and shorter than 4th + 5th. Hamann's organ: gutter with 2 vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation more superficial than on head, scarcely distinct; punctures smaller and more superficial than on head, spaced from each other by 4-5 times their own diameter. 1,5 times as broad as head, not much broader than long ($W/L = 1,5$) and moderately convex ($W/H = 1,66$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 1,12 mm, width 1,70 mm, height 1,02 mm.

Elytra: puncturation distinct and regular: punctures twice as large as on head, superficial, spaced from each other by 2-4 times their own diameter. A little broader than pronotum, as broad as long and moderately convex ($W/H = 1,68$). Lateral outline with slight and broadly rounded humeral angle. Sutural striae strong, within the apical half of elytra. Holotype: length 1,65 mm, width 1,68 mm, height 1,00 mm.

Membraneous wings present. Meso- and metasternum: median carina present, lateral lines present, femoral lines incomplete (form B, fig. 3).

Legs: male hind femura with distal tooth, as in *A. cottarellii* n. sp., fig. 39; tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 77, 78): aedeagus slender, with hook-like proximal part, lateral margins a little sinuate near apex, broadly rounded tip and U-shaped ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (fig. 66): apical and basal parts nearly alike in caliber; the latter extended with a very fine tube towards the duct connection.

Discussion: see what already noted for *A. osellai* n. sp.

Material examined: Holotype ♂ from Caucasus, legit Leder; 1 ♂ paratype from Caucasus; 1 ♂ and 1 ♀ paratypes from Caucasus-Daghestan; 1 ♀ paratype from Caucasus-Abastuman; 1 ♀ paratype from Caucasus-Swanetien; all of them in coll. Reitter, Budapest Museum; 2 ♂ probably belonging to the typical series, respectively from Caucasus and Caucasus-Swanetien, in coll. Hampe, Vienna Museum; 2 ♂ and 1 ♀ from Caucasus-Meskisches, leg. Leder and Reitter, in coll. Reitter-Grouvelle, Paris Museum; 1 ♀ labelled "Turkie" in Venice Museum.

Distribution: Caucasus (Daghestan, Abastuman, Meskisches, Swanetien), Turkey.

13. *Agathidium* (*s. str.*) *capitatum* Hlisl.

(Figs 24, 67, 79, 80)

Agathidium (*s. str.*) *capitatum* Hlislnikowsky, 1972 *Revue suisse Zool.* 79 (2): 839-841, figs 20-23

Length 2,9-3,1 mm (holotype 3,1 mm). Head and pronotum reddish-brown, elytra black; venter paler; antennae and legs dark testaceous. Whole dorsum microreticulate and punctate.

Head: microreticulation uniform, not much impressed but distinct; finely and sparsely punctate: punctures large and superficial, spaced from each other by 2-5 times their own diameter. Clypeal line vague. 3rd antennal segment nearly as long as the 2nd (fig. 24). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation as on head; puncturation sparser than on head. Rather broader than head ($P/H = 1,66$), moderately broader than long ($W/L = 1,47$) and moderately convex ($W/H = 1,63$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 1,02 mm, width 1,50 mm, height 0,93 mm.

Elytra: microreticulation as on head; only some punctures as large as on head. As broad as pronotum, nearly as broad as long and moderately convex ($W/H = 1,76$). Lateral outline with defined and broadly rounded humeral angle. Sutural striae absent. Holotype: length 1,40 mm, width 1,52 mm, height 0,89 mm.

Membranous wings absent. Meso- and metasternum: median carina present, lateral lines present, femoral lines absent (form A, fig. 2).

Legs: male hind femura as in *A. laevigatum* Er., fig. 41; tarsal formula: ♂ 5-5-4, ♀ 4-4-4.

Male copulatory organ (figs 79, 80): aedeagus slender, bent at right angle, with simple proximal part, lateral margins parallel and then gradually approached into a broadly rounded tip; ventral piece indistinct; parameres slender, a little increased at apex; phallobase embracing the proximal end of the aedeagus.

Spermatheca (fig. 67): C-shaped; apical and basal parts slender and not much different in caliber.

Discussion: In the ambit of the species with dorsum at least partly microreticulate and lacking in sutural striae, *A. capitatum* Hliss. is separable by presence of clypeal line and by the unitary value of the ratio $3rd/2nd$ in antennae. Excepting these characters and absence of femoral lines, it can be mistake for *A. tibiellum* Hliss., *A. denticulatum* Hliss. or *A. laevigatum* Er. because of its wholly microreticulate dorsum.

Type material: *A. capitatum* Hliss. was described on the basis of four specimens (holotype ♂ and 3 paratypes ♀) from Turkey: Ordu S/Tekkiraz, Ordu, Trabzon-Yomra, Artvin.

Material examined: TURKEY, holotype ♂, Ordu, S/Tekkiraz, 700 m, legit Besuchet, 18.V.1967, in Geneva Museum; 1 paratype ♀, Trabzon, Yomra, legit Besuchet, 15.V.1967, in Geneva Museum.

Distribution: Turkey.

14. *Agathidium* (*s. str.*) *laevigatum* Er.

(Figs 5, 33, 41, 68, 81, 82)

Agathidium laevigatum Erichson, 1848, *Naturl. Ins. Deutschl.* 3: 98

Agathidium (*s. str.*) *laevigatum*: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 216-217, figs 368-372

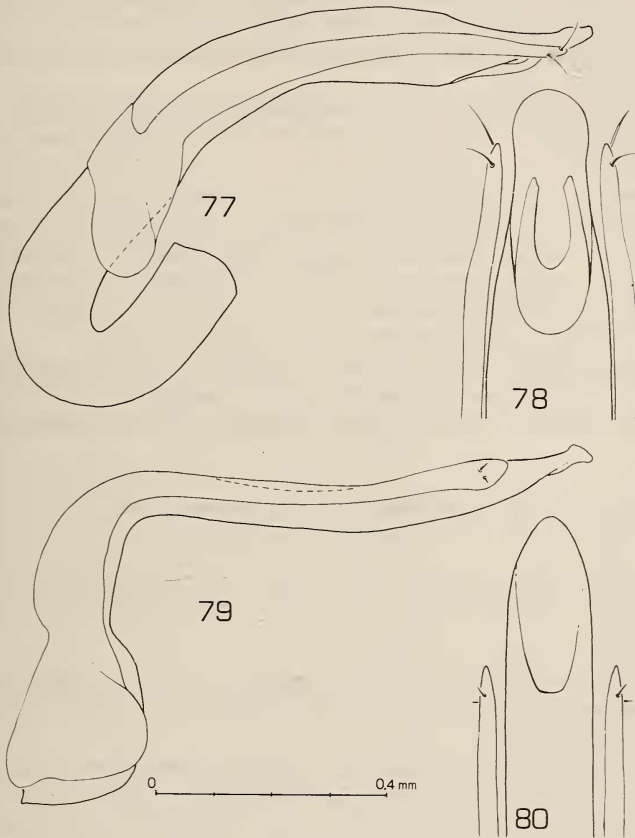
Description of lectotype and paralectotypes

Length 2,7-3,4 mm (lectotype ♂ 2,95 mm). Dorsum uniformly black, venter reddish-brown; antennae testaceous with dark club; legs testaceous. Whole dorsum microreticulate; punctate only on head and pronotum.

Head: microreticulation impressed and uniform; puncturation very fine and sparse: punctures very small and superficial, spaced from each other by 8-10 times their own diameter. Clypeal line absent. 3rd antennal segment a little longer than the 2nd ($3rd/2nd = 1,3$). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation as on head; punctures as small and superficial as on head but denser (spaced from each other by 3-8 times their own diameter). More than

1,5 times as broad as head (fig. 33), not much broader than long ($W/L = 1,35$) and moderately convex ($W/H = 1,53$). Anterior margin nearly rectilinear. Lateral outline very much broadly rounded. Lectotype: length 1,00 mm, width 1,35 mm, height 0,88 mm.



FIGS. 77-80.

Male copulatory organ (lateral view and ventral view of apex) of: 77-78, *A. causicum* Reitt. (holotype); 79-80, *A. capitatum* Hlisl. (holotype).

Elytra: microreticulation as on head. A little broader than pronotum, nearly as broad as long and moderately convex ($W/H = 1,8$). Lateral outline with slight humeral angle. Sutural striae absent. Lectotype: length 1,31 mm, width 1,41 mm, height 0,78 mm.

Membraneous wings present. Meso- and metasternum: median carina present, lateral lines incomplete, femoral lines incomplete (form D, fig. 5).

Legs: male hind femura as in fig. 41; tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 81, 82): aedeagus slender, with simple proximal part, lateral margins gently approached towards apex into a rounded tip, ventral piece U-shaped; parameres slender, gently tapered towards apex.

Spermatheca (fig. 68): apical part slender; basal part nearly spherical, with short and thin production towards the duct connection.

Variation in the Turkish specimens: Head and pronotum more densely punctate (punctures spaced from each other by 4-6 times their own diameter); elytral punctures smaller than on pronotum. We have realized these variations occurring also in European specimens, so that they can be regarded as comprised within the usual range of variability of *A. laevigatum* Er.

Discussion: *A. laevigatum* is easily separable from *A. tibiellum* Hliss. by colouring of dorsum and antennae, strong and uniform microreticulation, head much smaller than pronotum.

Type material: ERICHSON described *A. laevigatum* on the basis of 12 specimens, now in Berlin Museum. We have examined these type specimens and realized one of them belonging to a second species (*A. paganettianum* Hliss.). Therefore we designate now lectotype and paralectotype on the basis of 11 specimens. The lectotype is now labelled: "ANGELINI-DE MARZO *studuerunt* 1981, *Agathidium* ♂ N.1604". The ten paralectotypes are labelled: ♂/♀ N.1601-1603, 1605-1608, 1171, 1179.

Material from Turkey: TURKEY, Mersin, Tarsus-Gulek, 550 m, 4 specimens, Besuchet and Löbl, 30.IV.1978 in Geneva Museum and coll. Angelini.

Distribution: Europe, Turkey; different subspecies: North Africa and Boreal Asia.

15. *Agathidium* (*s. str.*) *tibiellum* Hliss.

(Figs 34, 69, 83, 84)

Agathidium (*s. str.*) *tibiellum* Hlissnikowsky, 1972, *Revue suisse Zool.* 79 (2): 834-836, fig 11-14.

Length 2,8-3,2 mm (holotype 2,8 mm). Dorsum uniformly reddish-brown, venter paler; antennae and legs uniformly testaceous. Whole dorsum microreticulate; punctate only on head and pronotum.

Head: microreticulation superficial on discum, more impressed at sides; puncturation very fine, sparse and irregular: punctures very small, superficial, different in size, spaced from each other by 2-10 times their own diameter. Clypeal line absent. 3rd antennal segment much longer than the 2nd (3rd/2nd = 1,6). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation and puncturation as on head. Nearly 1,5 times as broad as head (fig. 34), much broader than long (W/L = 1,71) and scarcely convex (W/H = 1,84). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 0,85 mm, width 1,46 mm, height 0,79 mm.

Elytra: microreticulation distinct and regular. A little less broad than pronotum, nearly as broad as long and scarcely convex (W/H = 1,89). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1,32 mm, width 1,42 mm, height 0,75 mm.

Membraneous wings absent. Meso and metasternum: median carina absent, lateral lines absent, femoral lines complete.

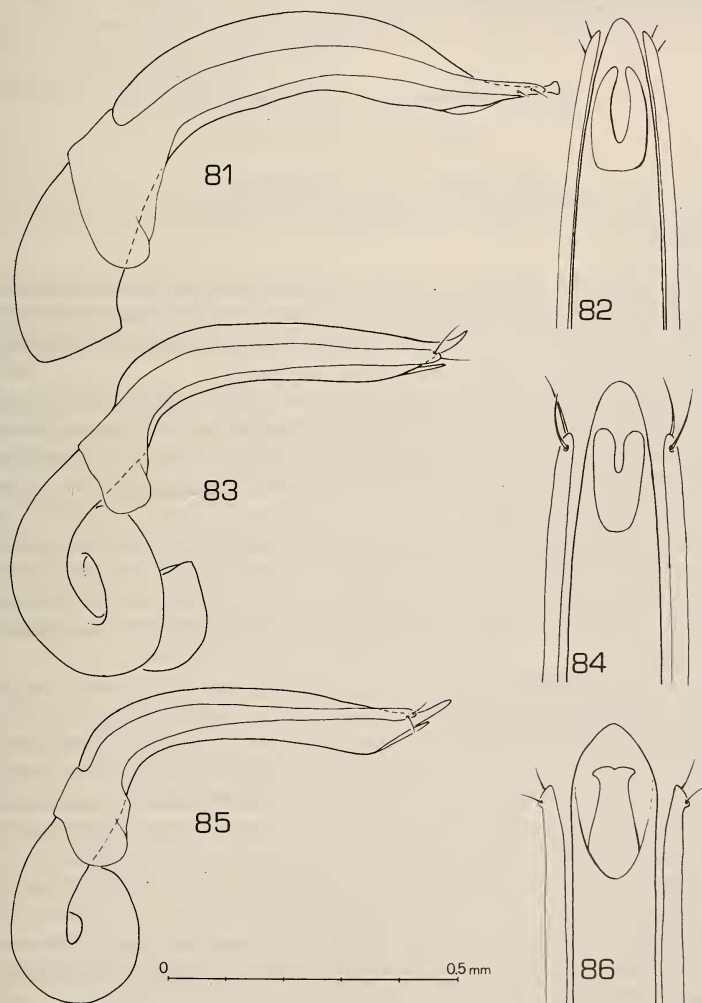
Legs: male hind femura as in *A. laevigatum*, fig. 41; tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 83, 84): aedeagus slender, with spiral-like proximal

part, lateral margins gently approached into a rounded tip, bifid ventral piece; parameres slender, gently tapered towards apex.

Spermatheca (fig. 69): U-shaped; apical and basal parts nearly alike in length; the former a little greater in caliber.

Discussion: Together with *A. denticulatum* Hlissn., *A. tibiellum* Hlissn. is easily separable from *A. laevigatum* Er. by colouring of dorsum and antennae, and by the head



Figs. 81-86.

Male copulatory organ (lateral view and ventral view of apex) of: 81-82, *A. laevigatum* Er. (Mersin, Tarsus-Gulek); 83-84, *A. tibiellum* Hlissn. (holotype); 85-86, *A. denticulatum* Hlissn. (holotype).

being much smaller than pronotum; from *denticulatum* it differs by shape of pronotum and of male hind femura.

Type material: *A. tibiellum* Hlissn. was described on the basis of 17 specimens (7 ♂ and 10 ♀) from Turkey.

Material examined: TURKEY, Rize, Yol Ustu, 600 m, holotype ♂, legit Besuchet, 15.V.1967, in Geneva Museum; Trabzon, paratype ♂, legit Besuchet, 15.V.1967, in Geneva Museum; Artvin, Findikli, paratype ♀, legit Besuchet, 14.V.1967, in Geneva Museum.

Distribution: Turkey (Tokat-Almus, Artvin-Borça Hopa, Artvin-Findikli, Trabzon-Vakfikebr, Jomra, Bafra Samsun).

16. *Agathidium* (*s. str.*) *denticulatum* Hlissn.

(Figs 25, 35, 42, 70, 85, 86)

Agathidium (*s. str.*) *denticulatum* Hlissnikowsky, 1972, *Revue suisse Zool.* 79 (2): 837-838, figs 15-19.

Length 2,4-3,1 mm (holotype 2,4 mm). Head and pronotum uniformly reddish-brown; elytra black, reddish at apex and along the suture; venter dark reddish-brown, paler on mesosternum; antennae and legs uniformly testaceous. Microreticulation superficial on the whole dorsum; whole dorsum punctate.

Head: microreticulation very superficial on discum, a little more impressed near the eyes; punctate only on discum: punctures small and superficial, spaced from each other by 2-6 times their own diameter. Clypeal line absent. 3rd antennal segment much longer than the 2nd (3rd/2nd = 1,6, fig. 25). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: microreticulation more or less superficial; puncturation fine and sparse as on head. A little broader than head (P/H = 1,3, fig. 35), not much broader than long (W/L = 1,43) and moderately convex (W/H = 1,53). Anterior margin rather bent. Lateral outline very much broadly rounded. Holotype: length 0,80 mm, width 1,18 mm, height 0,75 mm.

Elytra: microreticulation uniform and regular, superficial but more impressed than on pronotum; puncturation distinct and regular: punctures large and superficial, spaced from each other by 2-4 times their own diameter. As broad as pronotum, nearly as broad as long and moderately convex (W/H = 1,81). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1,05 mm, width 1,18 mm, height 0,65 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femura with strong tooth at the posterior margin (fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 85, 86): aedeagus slender, with ring-like proximal part, lateral margins parallel and gently approached into a rounded tip, ventral piece not bifid; parameres slender, gently tapered towards apex.

Spermatheca (fig. 70): apical part slender, gently tapered towards apex; basal part fat.

Discussion: see what already noted for *A. tibiellum* Hlissn.

Type material: *A. denticulatum* Hlissn. was described on the basis of 9 specimens (4 ♂ and 5 ♀) from Turkey.

Material examined: TURKEY, Antakya, Osmanije-Zorhum, 500 m, holotype ♂, legit Besuchet, 7.V.1967, in Geneva Museum; Adana, Teleir, 1200 m, 1 paratype ♂, legit Besuchet, 4.V.1967, in Geneva Museum; Antalya, Zorhum-Yajlasi, 1600 m, 1 paratype ♀, legit Besuchet, 7.V.1967, in Geneva Museum: Adana, Tekir, 1100 m, 11 specimens, Besuchet and Löbl, 30.IV.1978; Mugla, Sokova, 2 specimens, Besuchet and Löbl, 30.IV.1978; Antalya, 18 Km south/east Gazipasa, 4 specimens, Besuchet and Löbl, 27.IV.1978; Mersin, between Mersin and Yeniköy, 650 m, 2 specimens, Besuchet and Löbl, 29.IV.1978; Mersin, Tarsus-Gulek, 550 m, 84 specimens, Besuchet and Löbl, 30.IV.1978; Antakya, 7 Km east Yeşilkent, 350-400 m, 62 specimens, Besuchet and Löbl, 4.V.1978; Antakya, Sogukoluk, 700 m, 14 specimens, Besuchet and Löbl, 3.V.1978. SYRIA, Harbiye, 4 specimens, Besuchet and Löbl, 2.V.1978; Kişlak-Şenkoy, 800-850 m, 12 specimens, Besuchet and Löbl, 2.V.1978.

Distribution: Turkey, Syria.

17. *Agathidium* (*s. str.*) *loebli* n. sp.

(Figs 11, 26, 43, 87, 88, 93)

Length 3-3,8 mm (holotype 3,8 mm). Dorsum uniformly black, otherwise reddish at sides of pronotum and elytra (in some paratypes): antennae uniformly testaceous; legs dark reddish brown. Microreticulate only on head and pronotum; punctate on the whole dorsum.

Head: microreticulation very superficial, more impressed near the eyes; finely and sparsely punctate: punctures small, superficial, spaced from each other by 3-4 times their own diameter. Greatest breadth at eyes (fig. 11). Clypeal line absent. 3rd antennal segment nearly 1,7 times as long as the 2nd (fig. 26). Hamann's organ: gutter with 1 very small vesicle in both 9th and 10th antennal segments.

Pronotum: microreticulation superficial as on head; puncturation as on head. A little broader than head ($P/H = 1,4$), a little broader than long ($W/L = 1,23$) and scarcely convex ($W/H = 1,47$). Anterior margin very bent. Lateral outline much broadly rounded. Holotype: length 1,38 mm, width 1,70 mm, height 1,15 mm.

Elytra: distinctly and regularly punctate: punctures large, scarcely impressed, spaced from each other by 2-4 times their own diameter. A little less broad than pronotum, nearly as broad as long ($W/L = 0,94$) and moderately convex ($W/H = 1,65$). Lateral outline with defined and broadly rounded humeral angle. Sutural striae absent. Holotype: length 1,75 mm, width 1,65 mm, height 1,00 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines present, femoral lines complete.

Legs: posterior margin of male hind femura with two teeth (distal and subdistal, fig. 43); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 87-88): aedeagus very slender, with spiral-like proximal part, apex bent at right angle, tip broadly rounded and a little sinuate; ventral piece bifid, with particularly shaped arms; parameres slender, with folded tip.

Spermatheca (fig. 93): apical part slender, nearly constant in caliber; basal part rather fat.

Discussion: *A. loebli* n. sp. is closely related to *A. antiochense* n. sp. and *A. anatolicum* n. sp. by habitus and characters of antennae (together with the characters already mentioned: lack of clypeal line and of sutural striae); from them it differs by presence of microreticulation on head and pronotum and lack of it on elytra.

Type material: TURKEY, Konya, 18 Km south/west Beysehir, 1200 m, 31 ♂ and 45 ♀, Besuchet and Löbl, 7.V.1978 (holotype ♂ N. 1723, 25 paratypes ♂ N. 1724-1748 and 38 paratypes ♀ N. 1752-1789 in Geneva Museum; 5 ♂ and 7 ♀ N. 1749-1751, 1790-1793, 1800, 1801, 1952-1954 in coll. Angelini); Antalya, 12 Km north Manavgat, 2 ♂, Besuchet and Löbl, 26.IV.1978 (paratypes N. 1806, 1807 in Geneva Museum); Antalya, 18 Km south/east Gazipaşa, 8 ♂ and 6 ♀, Besuchet and Löbl, 27.IV.1978 (5 ♂ and 6 ♀ paratypes N. 1803-1805, 1808-1815 in Geneva Museum; 3 ♂ paratypes N. 1800-1802 in coll. Angelini).

Derivatio nominis: dedicated to Dr. Ivan Löbl.

18. *Agathidium* (*s. str.*) *antiochense* n. sp.

(Figs 89, 90, 94)

Length 2,4-2,8 mm (holotype 2,7 mm). Head and pronotum reddish-brown with black veins; elytra black, reddish at apex and along the suture; in 5 paratypes scarcely sclerotized: dorsum pale reddish-brown; antennae and legs testaceous. Microreticulate only on elytra; punctate on the whole dorsum.

Head: puncturation uniform, fine and regular: punctures small and superficial, spaced from each other by 4-6 times their own diameter. Clypeal line absent. 3rd antennal segment nearly 1,5 times as long as the 2nd (3rd/2nd = 1,4). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: finely and distinctly punctate: punctures a little larger and more impressed than on head, spaced from each other by 4-8 times their own diameter. A little broader than head (P/H = 1,4), broader than long (W/L = 1,45) and moderately convex (W/H = 1,64). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 0,86 mm, width 1,25 mm, height 0,76 mm.

Elytra: microreticulation very superficial; strongly and regularly punctate: punctures 4 times as broad as on pronotum, superficial, spaced from each other by 1-2 times their own diameter. As broad as pronotum, nearly as broad as long and scarcely convex (W/H = 1,92). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1,18 mm, width 1,25 mm, height 0,65 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines absent, femoral lines complete.

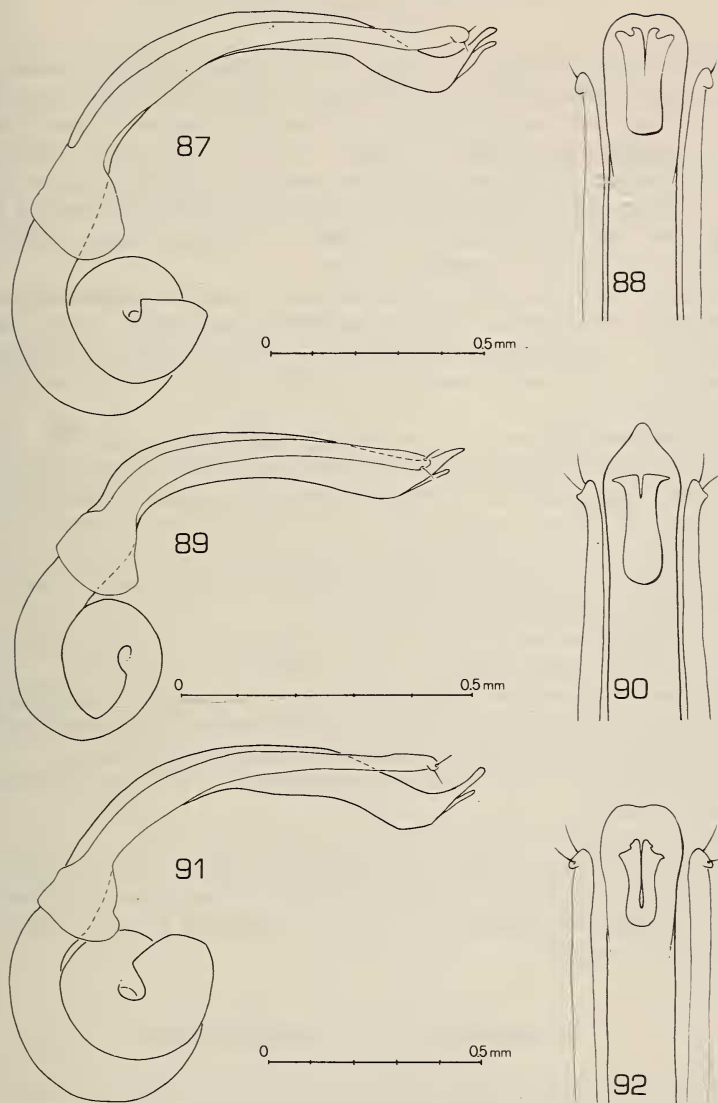
Legs: male hind femura with one tooth at the posterior margin (as in *A. denticulatum* Hlisl., fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 89, 90): aedeagus slender, with spiral-like proximal part, lateral margins a little sinuate towards apex and then approached into a small rounded tip; ventral piece slender and bifid, both of its arms with small lateral production; parameres slender, gently tapered towards apex.

Spermatheca (fig. 94): apical part slender, gently tapered towards apex; basal part pear-shaped.

Discussion: On the whole, *A. antiochense* n. sp. is similar to *A. anatolicum* n. sp., from which it differs by absence of microreticulation on head and pronotum, colouring of dorsum and ratio 3rd/2nd in antennal segments.

Type material: TURKEY, Antakya, 7 Km east Yeşilkent, 350-400 m, 1 ♂, Besuchet and Löbl, 26.IV.1978 (holotype N. 1967 in Geneva Museum); Antalya, between Antalya and Kemer, 3 ♂ and 3 ♀, Besuchet and Löbl, 4.V.1975 (2 ♂ and 2 ♀ paratypes N. 1969-1972 in Geneva Museum; 1 ♂ and 1 ♀ paratypes N. 1968, 1973 in coll. Angelini).



FIGS. 87-92.

Male copulatory organ (lateral view and ventral view of apex) of: 87-88, *A. loebli* n. sp.; 89-90, *A. antiochense* n. sp.; 91-92, *A. anatolicum* n. sp.

19. *Agathidium* (*s. str.*) *anatolicum* n. sp.
(Figs 27, 91, 92, 95)

Length 3-3,45 mm (holotype 3,45 mm). Dorsum black, reddish at sides and along the elytral suture; venter paler; antennae and legs uniformly testaceous. Microreticulation superficial on head sides and elytra, absent on pronotum; whole dorsum punctate.

Head: microreticulation absent or vague on discum, superficial but distinct at sides; puncturation uniform and regular: punctures small and superficial, spaced from each other by 1-5 times their own diameter. Clypeal line absent. 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,2, fig. 27). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation sparser than on head: punctures spaced from each other by 1-8 times their own diameter. A little broader than head (P/H = 1,3), a little broader than long (W/L = 1,28) and very convex (W/H = 1,49). Anterior margin rather bent. Lateral outline much broadly rounded. Holotype: length 1,18 mm, width 1,52 mm, height 1,02 mm.

Elytra: microreticulation very superficial; puncturation very fine and sparse: punctures very small, superficial, spaced from each other by 4-8 times their own diameter. A little broader than pronotum, as broad as long and scarcely convex (W/H = 1,83). Lateral outline with defined and broadly rounded humeral angle. Sutural striae absent. Holotype: length 1,56 mm, width 1,56 mm, height 0,85 mm.

Membranous wings absent. Meso- and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femura with one tooth at the posterior margin (as in *A. denticulatum* Hlisl., fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 91, 92): aedeagus very slender, with spiral-like proximal part, apex bent at right angle, tip broadly rounded and a little sinuate; ventral piece bifid, with particularly shaped arms; parameres slender, with folded tip.

Spermatheca (fig. 95): apical and basal parts nearly alike in length; the basal one a little greater in caliber.

Discussion: see what already noted for *A. antiochense* n. sp.

Type material: TURKEY, Isparta, Egridir-Çandır, 950 m, 32 ♂ and 26 ♀, Besuchet and Löbl, 6.V.1975 (holotype ♂ N. 2086, 28 ♂ and 19 ♀ paratypes N. 2087-2114, 2120-2134, 1795-1799 in Geneva Museum; 3 ♂ and 7 ♀ paratypes N. 1794, 1876-1880, 2115, 2117-2119 in coll. Angelini).

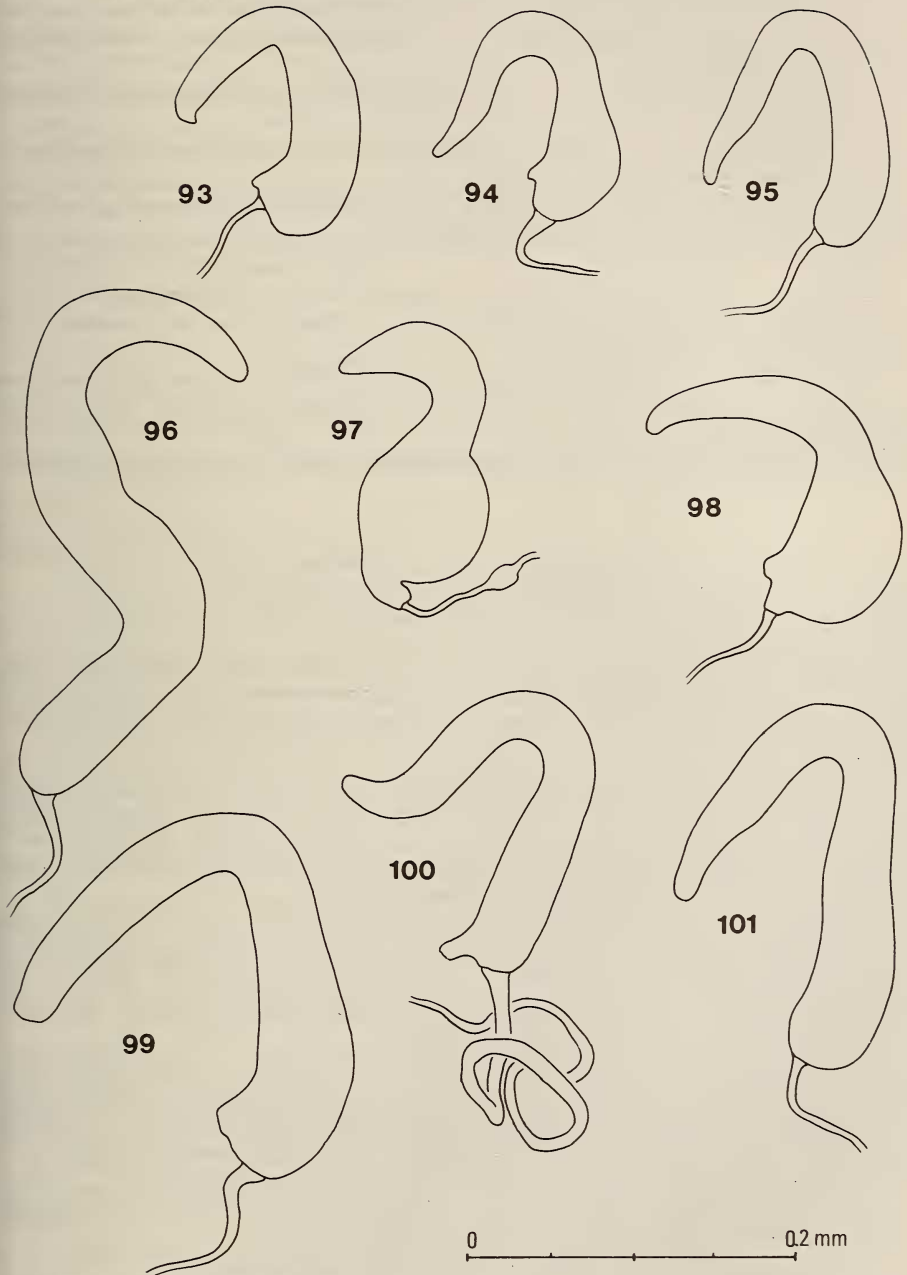
20. *Agathidium* (*s. str.*) *bodemeyeri* Hlisl.

Agathidium (*s. str.*) *bodemeyeri* Hlisl. 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 164-165, figs 235-239 (Turkey, Sultan Dagh).

From the original description

"Length 2,5-2,9 mm. Dorsum nut-brown, vertex of head and pronotum paler; antennae and legs brick-reddish; 9th and 10th antennal segments black; venter dark reddish-brown. Finely punctate and not microreticulate.

Head: finely and sparsely punctate: punctures spaced from each other by 3 times their own diameter. Antennae rather long: 3rd segment 1,5 times as long as the 2nd and as long as 4th + 5th. Clypeal line fine and hardly distinct.



Figs. 93-101.

Spermatheca of: 93, *A. loebli* n. sp.; 94, *A. antiochense* n. sp.; 95, *A. anaticum* n. sp.; 96, *A. bythinicum* n. sp.; 97, *A. obenbergeri* Hlisen. (Turkie); 98, *A. olympicum* n. sp.; 99, *A. leonhardianum* Roubal (Yalova-Orhangazi); 100, *A. brignolii* n. sp.; 101, *A. winkleri* Hlisen.

Pronotum: puncturation rather finer than on head. 1,5 times broader than long. Anterior margin scarcely bent. Lateral outline broadly rounded.

Elytra: puncturation 2 times denser than on pronotum: punctures spaced from each other by 1-1,5 times their own diameter. As broad as pronotum and as broad as long. Sutural striae absent.

Membraneous wings absent. Mesosternum wholly carinate; metasternum with short femoral lines.

Legs: male hind femura broadly rounded distally, with strong tooth at the posterior margin; tarsal formula: ♂ 5-5-4, ♀ 5-4-4."

Male copulatory organ: on the basis of the HLISNIKOWSKY'S drawing the lateral view of it looks similar to that of *A. pisanum* Bris. The dorsal view of the apex is not figured.

Discussion: With respect to the seven species (lacking in microreticulation and in sutural striae) which follow, *A. bodemeyeri* Hlisl. differs by the dark antennal clubs and by presence of fine clypeal line.

Type material: *A. bodemeyeri* Hlisl. was described on the basis of 4 specimens (holotype ♂, 1 paratype ♂ and 2 paratypes ♀), now presumably in coll. Hlislukowsky, Prague Museum.

Distribution: TURKEY, Sultan Dag, legit Bodemeyer (HLISNIKOWSKY 1964).

21. *Agathidium* (*s. str.*) *bythinicum* n. sp.

(Figs 6, 12, 28, 36, 44, 96, 102, 103)

Length 3-3,4 mm (holotype 3,05 mm). Head reddish brown with black veins; pronotum and elytra reddish at sides and along the suture; venter reddish-brown; antennae and legs uniformly testaceous. Microreticulation absent; whole dorsum punctate.

Head: puncturation fine and distinct: punctures small and superficial, spaced from each other by 3-5 times their own diameter. Eyes big and protuberant (fig. 12). Clypeal line absent; clypeum of males with two transverse tubercles (fig. 12). 3rd antennal segment a little longer than the 2nd (3rd/2nd = 1,3, fig. 28). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: puncturation fine and superficial as on head, but sparser: punctures spaced from each other by 3-8 times their own diameter. 1,5 times as broad as head (fig. 36), rather broader than long (W/L = 1,48) and moderately convex (W/H = 1,56). Anterior margin scarcely bent. Lateral outline much broadly rounded. Holotype: length 1,08 mm, width 1,60 mm, height 1,02 mm.

Elytra: finely and sparsely punctate: punctures as large as on head, spaced from each other by 8-10 times their own diameter; long, irregular and superficial furrows are interposed. As broad as pronotum, much broader than long (W/L = 1,21) and moderately convex (W/H = 1,77). Lateral outline with slight humeral angle. Sutural striae absent. Holotype: length 1,32 mm, width 1,60 mm, height 0,90 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines absent, femoral lines incomplete (form E, fig. 6).

Legs: male hind femura simple (as in fig. 44); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 102, 103): aedeagus slender, with hook-like proximal part, lateral margins gently approached at apex into a broadly rounded tip, ventral piece U-shaped; parameres slender, gently tapered towards apex.

Spermatheca (fig. 96): S-shaped; apical and basal parts not much different in caliber.

Discussion: *A. bythinicum* n. sp. has in common with the six species which follow (*A. turcicum* Reitt., *A. obenbergeri* Hlisl., *A. olympicum* n. sp., *A. leonhardianum* Roub., *A. brignolii* n. sp. and *A. winkleri* Hlisl.) absence of microreticulation, of clypeal line and of sutural striae, as well as dorsum wholly punctate and antennae uniformly testaceous. Nevertheless, it differs clearly from them by eyes-shape, presence of clypeal tubercles in males and length ratio between 3rd and 2nd antennal segments.

Type material: TURKEY, Bolu, Abant, 1500-1600 m, 2 ♂ and 2 ♀, Besuchet and Löbl, 22.V.1976 (holotype ♂ N. 1974, 1 paratype ♂ and 1 paratype ♀ N. 1975, 1977 in Geneva Museum; 1 paratype ♀ N. 1976 in coll. Angelini); Bolu, Omerler near Bolu, 800 m, 1 ♂ and 1 ♀, Besuchet and Löbl, 21.V.1976 (paratype ♀ N.1979 in Geneva Museum, paratype ♂ N. 1978 in coll. Angelini).

22. *Agathidium* (*s. str.*) *turcicum* Reitter

Agathidium turcicum Reitter, 1898, *Wien. ent. Ztg* 17 (2): 52 (Constantinopel).

Agathidium (*s. str.*) *turcicum*: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 187.

From the original description

"Similar to *A. dentatum* Muls. & Rey by shape, size and sculpturing, but the antennae are more robust and squat, with 3rd segment nearly twice as long as the 2nd and as long as 4th + 5th. Male hind femura simple. Whole body reddish-jellow. Clypeum with anterior margin nearly rectilinear; clypeal line absent. Length 2.2 mm. Collected near Constantinople by E. Merkl."

Discussion: On the whole of the external characters, *A. turcicum* Reitt. is related to the five species which follow, and particularly to *A. leonhardianum* Roub., *A. obenbergeri* Hlisl. and *A. brignolii* n. sp. Nevertheless, it clearly differs from them by its simple male hind femura.

Taxonomic remarks: We had for some time certain doubts about the specific validity of *A. turcicum* Reitt. In fact, in the original description REITTER relates it to *A. dentatum* Muls. & Rey, but in REITTER's collection we have found 11 specimens determined as "*A. dentatum*" which belong really to three different species: 3 specimens to *A. dentatum* Muls. & Rey, 3 specimens to *A. obenbergeri* Hlisl. (2 ♂ from Italy-Vallo Lucano; 1 ♂ from Italy-Santa Cristina) and 5 specimens to *A. leonhardianum* Roub. (1 ♂ and 1 ♀ from Turkey-Sabandja, legit Bodemeyer; 1 ♂ from Turkey-Goek Dag, legit Bodemeyer; 2 ♀ from Turkey, legit Merkl). So that we could not understand to which of the above-mentioned species REITTER had related *A. turcicum*. At last, we have regarded the latter as a valid species because of the male hind femura shape, which is described as simple (toothed at the posterior margin in the close related species).

Type material: Not found, in the following Museum: Basel, Berlin, Bratislava, Budapest, Copenhagen, Geneva, Helsinki, Munich, Paris, Prague, Stuttgart, Uppsala, Vienna.

Distribution: TURKEY, Istanbul (legit E. Merkl: REITTER, 1898a: 52).

23. *Agathidium* (*s. str.*) *obenbergeri* Hlisl.

(Figs 29, 37, 97, 104, 105)

Agathidium (*s. str.*) *obenbergeri* Hlisl. 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 189-190, figs 305-309.

Length 2,6-3,2 mm (holotype ♂ and paratype ♀: 2,6 mm, according to Hlisl. 1964: 190). Dorsum uniformly black or dark reddish-brown, paler on mesosternum; antennae and legs uniformly testaceous. Microreticulation absent; whole dorsum finely and regularly punctate.

Head: finely and regularly punctate: punctures small, rather impressed, spaced from each other by 3-6 times their own diameter. Clypeal line absent. 3rd antennal segment much longer than the 2nd ($3rd/2nd = 1,7$) and longer than 4th + 5th (fig. 29). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation a little denser than on head. 1,5 times broader than head (fig. 37), a little broader than long ($W/L = 1,53$) and moderately convex ($W/H = 1,64$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Specimen ♂ from the typical locality: length 1,03 mm, width 1,53 mm, height 0,96 mm.

Elytra: distinctly punctate: punctures 2-4 times as large as on head, superficial, spaced from each other by 2-3 times their own diameter. A little broader than pronotum, nearly as broad as long ($W/L = 0,98$) and moderately convex ($W/H = 1,76$). Lateral outline with slight humeral angle. Sutural striae absent. Specimen ♂ from the typical locality: length 1,52 mm, width 1,50 mm, height 0,85 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines incomplete, femoral lines complete (form F, fig. 7).

Legs: male hind femora with strong tooth (as in *A. denticulatum* Hlisl., fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 104, 105): aedeagus rather squat, bent at right angle, with proximal part simple, apex a little excavate and with short lateral productions; ventral piece squat and not bifid; phallobase embracing the aedeagus near the proximal end of it; parameres slender, gently tapered towards apex.

Spermatheca (fig. 97): apical part slender; basal part nearly spherical, with tubercle where is the duct connection.

Discussion: *A. obenbergeri* Hlisl. clearly differs from *A. olympicum* n. sp., *A. leonhardianum* Roub., *A. brignoli* n. sp. and *A. winkleri* Hlisl. by ratio W/L of pronotum and by the characters of elytral puncturation; from *olympicum* it differs also by ratio $3rd/2nd$ in antennal segments.

Type material: *A. obenbergeri* Hlisl. was described on the basis of 2 specimens (1 ♂ and 1 ♀) from Italy (Calabria, Santa Eufemia, legit Paganetti), now in coll. Hlisl. 1964, Prague Museum.

Material from Turkey: TURKEY, 1 ♀, coll. Reitter, Budapest Museum, N. 1253.

Distribution: Southern Italy (Campania, Lucania, Calabria), Turkey.

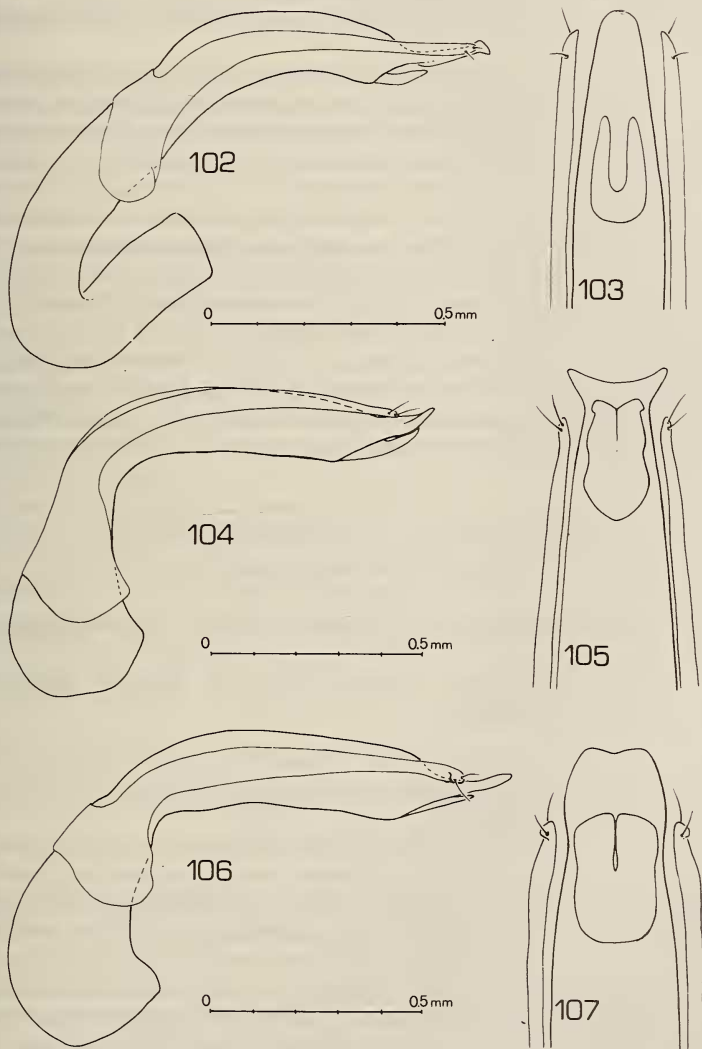
24. *Agathidium* (*s. str.*) *olypticum* n. sp.

(Figs 30, 38, 45, 98, 106, 107)

Length 2,85-3,4 mm (holotype 3,4 mm). Dorsum black, head anteriorly black; venter reddish-brown; antennae and legs uniformly testaceous. Microreticulation in traces on elytra or totally absent; whole dorsum punctate.

Head: very finely punctate: punctures small and superficial, spaced from each other by 3-5 times their own diameter. Clypeal line absent. 3rd antennal segment a little longer than the 2nd ($3rd/2nd = 1,3$, fig. 30). Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head. Rather broader than head ($P/H = 1,42$, fig. 38), a little broader than long ($W/L = 1,36$) and moderately convex ($W/H = 1,54$).



FIGS. 102-107.

Male copulatory organ (lateral view and ventral view of apex) of: 102-103, *A. bythinicum* n. sp.; 104-105, *A. obenbergeri* Hliss. (Italy, Aspromonte); 106-107, *A. olympicum* n. sp.

Anterior margin rather bent (fig. 38). Lateral outline much broadly rounded. Holotype: length 1,16 mm, width 1,58 mm, height 1,02 mm.

Elytra: distinctly punctate: punctures larger and more impressed than on head, spaced from each other by 2-3 times their own diameter. As broad as pronotum, as broad as long and moderately convex ($W/H = 1,71$). Lateral outline with defined and broadly rounded humeral angle. Sutural striae absent. Holotype: length 1,52 mm, width 1,58 mm, height 0,92 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines vague or absent, femoral lines complete.

Legs: male hind femura with one tooth at the posterior margin (fig. 45); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 106, 107): aedeagus rather squat, with proximal part simple, lateral margins a little sinuate near apex, tip truncate and a little excavate, ventral piece strong and bifid; parameres slender, gently tapered towards apex, with folded tip.

Spermatheca (fig. 98): apical part slender, tapered towards apex; basal part fat, with slight tubercule where is the duct connection.

Discussion: *A. olympicum* n. sp. is hardly separable from *A. leonhardianum* Roub., *A. brignolii* n. sp. and *A. winkleri* Hlisl. on the basis of the external characters. On the contrary, male copulatory organ and spermatheca are somewhat characteristic.

Type material: TURKEY, Bursa, Uludag, 23 Km from Bursa, 1500 m, 2 ♂, Besuchet and Löbl, 13.V.1976 (holotype N. 2135 and paratype N. 2136 in Geneva Museum); Bursa, Uludag, 20 Km from Bursa, 1300 m, 3 ♂ and 10 ♀, Besuchet and Löbl, 12.V.1976 (1 ♂ and 8 ♀ paratypes N. 2139-2147 in Geneva Museum; 2 ♂ and 2 ♀ paratypes N. 2137, 2138, 2148, 2149 in coll. Angelini); unreported locality, 2 ♂, legit Merkl (paratype N. 2351 in coll. Reitter, Budapest Museum; paratype N. 2274 in coll. Angelini).

25. *Agathidium* (*s. str.*) *leonhardianum* Roubal

(Figs 7, 13, 31, 46, 99, 108, 109)

Agathidium leonhardianum Roubal, 1915, *Ent. Mitt.* 4 (10-12): 295-296, Bulgaria (Trevna, Maglige).

Agathidium (*s. str.*) *leonhardianum*: HLISNIKOWSKY 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 161-164, figs 230-234.

Length 3,5-4,7 mm (lectotype 4,7 mm). Dorsum black, head anteriorly and laterally reddish; venter reddish-brown; antennae and legs uniformly testaceous. Microreticulation absent; whole dorsum punctate.

Head: finely and regularly punctate: punctures small and rather impressed, spaced from each other by 3-6 times their own diameter; some punctures very small. Greatest breadth at eyes: fig. 13. Clypeal line absent. 3rd antennal segment much longer than the 2nd ($3rd/2nd = 1,7$, fig. 31). Hamann's organ: gutter with 1 or 2 very small vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head. 1,6 times as broad as head, a little broader than long ($W/L = 1,29$) and moderately convex ($W/H = 1,7$). Anterior margin much bent. Lateral outline much broadly rounded. Lectotype: length 1,70 mm, width 2,20 mm, height 1,30 mm.

Elytra: strongly and regularly punctate: punctures more than twice as large as on head, very impressed, spaced from each other by 3-5 times their own diameter. A little broader than pronotum, as broad as long and scarcely convex ($W/H = 2,1$). Lateral

outline with very slight humeral angle. Sutural striae absent. Lectotype: length 2,21 mm, width 2,20 mm, height 1,05 mm.

Membraneous wings absent. Meso and metasternum: median carina present, lateral lines slight and incomplete, femoral lines complete (form F, fig. 7).

Legs: male hind femura with one tooth at the posterior margin (fig. 46); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 108, 109): aedeagus very slender, with spiral-like proximal part, apex bent up and a little increased, tip deeply excavate; ventral piece bifid, with particularly-shaped arms; parameres slender, with folded tip.

Spermatheca (fig. 99): apical and basal parts nearly alike in length; the latter a little fat.

Discussion: see what already noted for *A. olympicum* n. sp. Together with *A. winkleri* Hliss., *A. leonhardianum* Roub. possesses a particularly shaped pronotum (anterior margin much bent); to *A. brignolii* n. sp. it shows differences in puncturation of head and pronotum. An examination of male copulatory organ and spermatheca is required to distinguish the three species.

Type material: *A. leonhardianum* Roub. was described on the basis of an unreported number of specimens from Bulgaria (Trevna, legit Hilf, V-VI.1912, and Maglige, legit Hilf, VII-VIII.1912, in coll. Leonhard-Roubal: ROUBAL 1915: 296). We have been allowed to examine 11 type specimens of coll. Roubal (Bratislava Museum): 3 ♂ and 6 ♀ from Trevna, 1 ♂ and 1 ♀ from Maglige. We have designated as lectotype one specimen ♂ from Trevna (now labelled N. 2242) and as paralectotypes the other 10 specimens.

Material from Turkey: TURKEY, Istanbul, between Yalova and Orhangazi, 2 specimens, legit Besuchet, 11.V.1976; Bursa gorge, 2 specimens, Besuchet and Löbl, 13.V.1976; Bursa, Nazifpasa, 1000 m, 3 specimens, Besuchet and Löbl, 14.VIII.1972; Bursa, south Bursa, 500 m, 15 specimens, Besuchet and Löbl, 12.V.1976; Sakarya, Şerefyie, 20 Km south Adapazari, 13 specimens, Besuchet and Löbl, 14.V.1976; Bolu, between Konuralp and Akcakoca, 300 m, 1 specimen, legit Vigna-Taglianti, VII.1976; unreported locality, 8 ♂ and 13 ♀, legit Merkl, coll. Roubal, Bratislava Museum; Sultan Dag: HLISNIKOWSKY 1964; Sabandja, 1 ♂ and 1 ♀, legit Bodemeyer, coll. Reitter, Budapest Museum; unreported locality, 1 ♀, legit Reitter, in coll. Reitter, Budapest Museum; Goek Dag, 1 ♂, in coll. Reitter, Budapest Museum; unreported locality, 1 ♀, legit Merkl, in coll. Reitter, Budapest Museum.

Distribution: Hungary, Jugoslavia (Macedonie: Parister), Bulgaria, Turkie.

26. *Agathidium* (*s. str.*) *brignolii* n. sp.

(Figs. 16, 100, 110, 111)

Length 2,6-2,8 mm (holotype 2,8 mm). Dorsum black, reddish at sides and along the elytral suture; venter reddish-brown; antennae and legs uniformly testaceous. Microreticulation absent; whole dorsum punctate.

Head: puncturation distinct and regular: punctures rather large and impressed, spaced from each other by 2-4 times their own diameter. Clypeal line absent. 3rd antennal segment much longer than the 2nd (3rd/2nd = 1,8). Hamann's organ: gutter with one vesicle in both 9th and 10th antennal segments.

Pronotum: puncturation denser than on head: punctures spaced from each other by 1-3 times their own diameter. 1,5 times as broad as head, a little broader than long (W/L = 1,33, fig. 16) and moderately convex (W/H = 1,58). Anterior margin rather

bent. Lateral outline much broadly rounded. Holotype: length 1,02 mm, width 1,36 mm, height 0,86 mm.

Elytra: puncturation denser than on head: punctures spaced from each other by 3-5 times their own diameter. As broad as pronotum, a little broader than long ($W/L = 1,13$) and scarcely convex ($W/H = 1,86$). Lateral outline with very slight humeral angle. Sutural striae absent. Holotype: length 1,20 mm, width 1,36 mm, height 0,73 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femura with one tooth at the posterior margin (as in *A. denticulatum* Hlisl., fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 110, 111): aedeagus very slender, with spiral-like proximal part, apex bent up and a little increased, tip truncate and a little excavate; ventral piece bifid; parameres slender, with folded tip.

Spermatheca (fig. 100): apical and basal parts nearly alike in length; the former a little twisted at apex; a long portion of the duct somewhat rigid.

Discussion: see what already noted for *A. olympicum* n. sp. and *A. leonhardianum* Roub. *A. brignolii* n. sp. differs from *A. winkleri* Hlisl. by shape of pronotum and presence of some traces of microreticulation on elytra.

Type material: TURKEY, Sinop, Dranaz Dag, 1 ♂, legit Brignoli, 1.VI.1969 (holotype N. 2085 in coll. Univ. Zool. Inst. Rome); Bolu, Abant, 1500-1600 m, 1 ♀, Besuchet and Löbl, 22.V.1976 (paratype N. 2083 in Geneva Museum); Bolu, Omerler near Bolu, 800 m, 4 ♂ and 5 ♀, Besuchet and Löbl, 21.V.1976 (2 ♂ and 4 ♀ paratypes N. 2074, 2075, 2078, 2080-2082 in Geneva Museum; 2 ♂ and 1 ♀ paratypes N. 2076, 2077, 2079 in coll. Angelini); Bolu, outskirts of Gerede, 800 m, 1 ♂, leg. M. and G. Osella, 4.VII.1972 (paratype N. 2084 in Verona Museum).

27. *Agathidium* (*s. str.*) *winkleri* Hlisl.

(Figs 17, 19, 32, 101, 112, 113, 114)

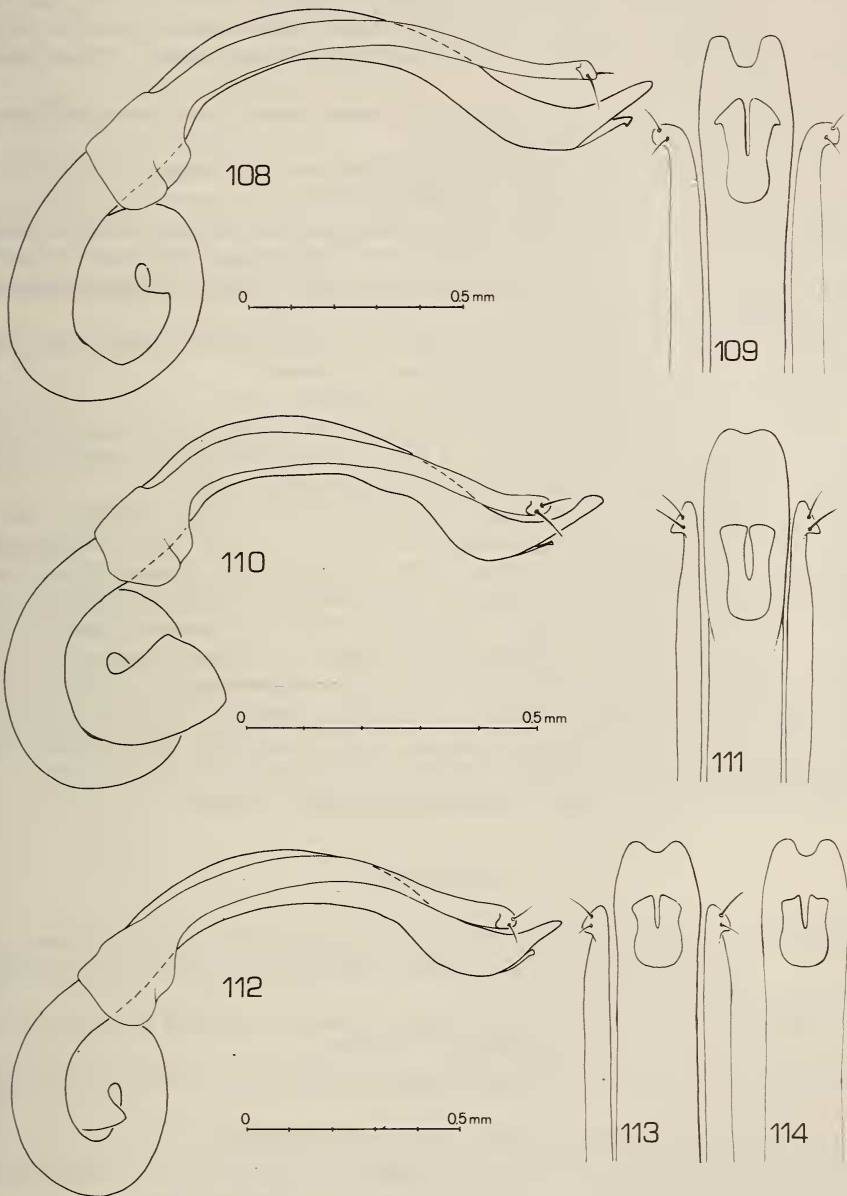
Agathidium (*s. str.*) *winkleri* Hlisl. Hlisl. Hlisl., 1964, *Acta ent. Mus. nat. Pragae*, suppl. 5: 169-170, figs 249-253.

Description on the basis of 1 ♂ and 1 ♀ from the typical locality

Length 2,9-4 mm (holotype ♂ and paratype ♀: 2,9-3,7 mm, according to Hlisl. Hlisl. Hlisl. 1964: 170). Dorsum uniformly black; some specimens with sides of pronotum and elytra reddish; venter light reddish-brown; antennae and legs uniformly testaceous. Microreticulation absent; whole dorsum with distinct and uniform puncturation. Lateral view of the body: fig. 19.

Head: punctures moderately large, rather impressed, spaced from each other by 1-3 times their own diameter; some punctures very small. Clypeal line absent or very vague. 3rd antennal segment more than 1,5 times as long as the 2nd ($3rd/2nd = 1,6$, fig. 32) and as long as 4th + 5th. Hamann's organ: gutter without vesicles in both 9th and 10th antennal segments.

Pronotum: puncturation as on head, a little sparser. 1,5 times as broad as head, just a little broader than long ($W/L = 1,28$, fig. 17) and moderately convex ($W/H = 1,58$). Anterior margin scarcely bent. Lateral outline much broadly rounded. Specimen ♂ from the typical locality: length 1,56 mm, width 2,00 mm, height 1,28 mm.



FIGS. 108-113.

Male copulatory organ (lateral view and ventral view of apex) of: 108-109, *A. leonhardianum* Roubal (lectotype); 110-111, *A. brignolii* n. sp.; 112-113, *A. winkleri* Hlisl. from Jaila Mount.; 114, *A. winkleri* Hlisl. from Bursa.

Elytra: puncturation strong: punctures at least twice as large as on pronotum, superficial, spaced from each other by 1-4 times their own diameter; short and irregular furrows are interposed. A little broader than pronotum, a little broader than long ($W/L = 1,12$) and scarcely convex ($W/H = 2$). Lateral outline with slight humeral angle. Sutural striae absent. Specimen ♂ from the typical locality: length 1,75 mm, width 1,96 mm, height 0,98 mm.

Membraneous wings absent. Meso- and metasternum: median carina present, lateral lines absent, femoral lines complete.

Legs: male hind femura with strong tooth at the posterior margin (as in *A. denticulatum* Hlisl., fig. 42); tarsal formula: ♂ 5-5-4, ♀ 5-4-4.

Male copulatory organ (figs 112-114): aedeagus very slender, with spiral-like proximal part, apex bent up and a little increased, tip truncate and excavate; ventral piece small and bifid, with arms variably shaped (figs 113-114); parameres slender, a little increased and folded at apex.

Spermatheca (fig. 101): apical part slender and gently tapered towards apex; basal part slender, greater in caliber and length than the former.

Discussion: see what already noted for *A. brignolii* n. sp.

Type material: *A. winkleri* Hlisl. was described on the basis of 11 specimens (holotype ♂, 5 paratypes ♂ and 5 paratypes ♀) from Crimea (Jaila Mount., legit Winkler), now in coll. Hlislukowsky, Prague Museum (HLISNIKOWSKY 1964).

Material examined: CRIMEA, Jaila Mount., 1 ♂ and 1 ♀, legit Winkler. TURKEY, Bursa, south Bursa, 500 m, 1 ♂, Besuchet and Löbl, 12.V.1976; Bolu, Omerler near Bolu, 800 m, 5 specimens, Besuchet and Löbl, 22.V.1976; Bolu, Abant, 10 specimens, Besuchet and Löbl, 22.V.1976; Zonguldak, Ereğli-Baliköy, 3 specimens, Besuchet and Löbl, 15.V.1976; Zonguldak, south Zonguldak, 500 m, 11 specimens, Besuchet and Löbl, 23.V.1976; Kastamonu, 13 Km east Agli, 1200 m, 3 specimens, Besuchet and Löbl, 18.V.1976; Kastamonu, south Inebolu, 600 m, 4 specimens, Besuchet and Löbl, 18.V.1976; Kastamonu, Ilgazdag Diphani, 1300 m, 2 specimens, Besuchet and Löbl, 17.V.1976; Sinop, south Bektas, 23 Km north Boyabat, 1100 m, specimens, Besuchet and Löbl, 20.V.1976; Sinop, Lala near Sinop, 3 specimens, Besuchet and Löbl, 20.V.1976.

Distribution: Crimea (typical locality: Jaila Mount.), Turkey.

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